The Builder.

VOL. XV.—No. 743.

OUR especial art is so much interested in all that tends to make a knowledge and love of art general, that we have for some years past given a prominent position to the proceedings of the Art-Union of London, which was established with that object mainly in view, and has admittedly effected it to a considerable extent. The annual meeting was held as usual on the last Tuesday in April (the 28th), in the Theatre Royal, Haymarket, when the Right Hon. Lord Monteagle presided, and a large audience testified to the interest felt in the proceedings. On the chair being taken,

Mr. Godwin, Honorary Secretary, read the following

REPORT:

The council of the Art-Union of London, in making their report to the subscribers for the twenty-first time, would recall to the minds of those of the present body who have not watched its progress from the commencement in 1836 (when a subscription of 489*l.* only, was raised with difficulty), the increased appreciation of art and artists on the part of the public now as compared with what it was then, the amount of money at this time annually expended on works of modern art, and the growing perception of the importance to the country of widely-spread art-education. Not many years ago the sale of a picture at the exhibition of the Royal Academy was a rarity, whereas now, at that and the other established exhibitions of works of art in the metropolis, purchases to the extent of thousands of pounds are made each season, irrespective of the sums spent by the prize-holders of the Art-Union. At the three exhibitions of oil-pictures now open,—the British Institution, the Society of British Artists, and the National Institution at the Portland Galleries,—purchases to the amount of 9,103*l.* have already been made by the general public.

The Art-Union of London has played its part, and an important one, in producing this state of public opinion. Addressing itself by its popular character to the masses, establishing local secretaries, not merely throughout the kingdom and its dependencies wherever an Englishman is to be found, but in various other countries, and disseminating far and wide its prints, bronzes, statuettes, reports, and catalogues, it has aided materially in creating the present widely-felt interest in the fine arts. Since the establishment of the Art-Union it has collected and distributed for the benefit of art and artists more than a quarter of a million of money, which otherwise would not have been so applied, and has led to the expenditure in the same channel of very much more.

The subscription of the present year amounts to the sum of 13,218*l.* 9s.

Each subscriber is entitled to, and many have already received two engravings,—one of "The Piper," by Mr. Frederick Goodall, A.R.A.; and one of "The Clemency of Cœur-de-Lion," by Mr. Cross.

For next year a painting, by Turner, of "Bellini's pictures conveyed to the Church of the Redentore, in Venice," has been engraved by Mr. J. T. Willmore, A.E.R.A.; and the prints will be ready for delivery in the spring.

The volume of etchings prepared for the Association by the Etching Club is completed, and will be found very interesting. Copies of it, as prizes, will form part of the present distribution.

The series of wood-cuts, illustrative of the works of deceased British painters, is being proceeded with, and will be appropriated hereafter. It comprises pictures by Sir W. Allan, Barry, Bird, Blake, Constable, Collins, Copley, Fielding, Etty, Gainsborough, Haydon, Von Holst, Lawrence, Moreland, Romney, Stothard, Turner, Wilkie, and others.

The council have the satisfaction of announcing, that the popular picture, "The Sands of Ramsgate," by W. P. Frith, R.A. the property of her Majesty, is being engraved by Mr. Sharp, for the Association, and will be delivered to all subscribers of a future year. They have also arranged for the production of an engraving by Mr. Willmore, after the picture by Turner, in the National collection, known as "Childe Harold's Pilgrimage."

It is sometimes urged as an objection to the Art-Union, that its productions, being issued to large numbers of persons, become in consequence common and valueless. This is not the feeling in which works of art should be viewed. It is not so in literature: a book is prized for the instruction it contains, or the delight it affords; and the value of it as a work of mind, is in no degree lessened because copies are multiplied in thousands, and the book is placed within the reach of every one. The beauty of the woods and the glory of the sea are common to all, but are none the less surely beauty and glory.

Arrangements have been made with Mr. Thomas Battam for the production, in Parian statuary, of Gibson's fine group, "Venus and Cupid," with the kind concurrence of the Earl Yarborough, to whom it belongs.

In the department of bronzes, Mr. Stephens has executed for the Association a group, "Mercy on the Battle-field," and is now producing it in bronze for distribution as prizes.

The medal, commemorative of Sir William Chambers, has been completed by Mr. B. Wyon, and a certain number of examples will be allotted as prizes to-day.

In the Report of a committee appointed by the Royal Institute of British Architects to examine the Soulages Collection, now in this country, and to advise as to the expediency of recommending the Government to purchase it for the nation, honourable testimony is borne to the long-continued endeavours of the Art-Union of London, in the face of difficulties, to encourage the production of artistic bronzes in England.

The extraordinary collection of decorative objects of utility, of the fifteenth and sixteenth centuries, referred to, shows, in a striking manner, the extent to which the best obtainable art was then applied to the most ordinary objects, whether a mirror-frame, a pair of bellows, an earthenware dish, or the dining-room fire-dogs. Nothing was deemed too trivial to occupy the highest talents. Wanting in some important qualities as the works of this period may be, the Soulages Collection is nevertheless one of extreme value, and should unquestionably be purchased by the Government as a means of instructing the public mind, and enlarging the field for art-application. It has been often urged that taste in manufactures, which gives a country the world for a market, is only to be expected where the fine arts are properly encouraged.

Amongst the current art questions which occupy attention, the determination of the best site for the National Gallery is not the least interesting. The commission appointed to take evidence on the subject, and which is now sitting, doubtless feel the importance of a central situation, easily accessible from all parts of the metropolis, and it is to be hoped will not remove the national collections from amongst the workers, unless the most conclusive reasons for the change are given. The widest facilities for the contemplation of noble works of art should be afforded to the people; access to collections should be made more easy, not more difficult,—inducements to visit them should be increased, not lessened.

The want of public collections of pictures, and other works of art, in our provincial towns, before urged by your council, is still a discredit to us, calling for removal. Nearly every principal town in France possesses its collection, open to the public at stated times, and largely resorted to, with great advantage to the country, both commercial and social.

Art gives pleasures that never pall, and, amidst the bustle and combat of every-day life, will brighten the passing hour, and exalt the thoughts and feelings. "That pleasure which is at once the most intense, the most elevating, and the most pure, is found in the contemplation of the beautiful."*

Of the amazing number of noble works of art possessed by private individuals in Great Britain, the Exhibition of Art Treasures in Manchester, to be opened to the public in a few days, will afford astounding evidence, and will give such an opportunity for the study of the history and progress of the arts, the characteristics of the various schools, the position of modern English art, its strength and its weaknesses, as never before was provided.

The Museum of General Art, too, which has been gathered together there from all parts of the country, will illustrate in a remarkable manner every sort of art-manufacture and decoration,—working in metal, ivory, glass, and clay; carving, enamelling, and mosaic work. Sculpture, too, will be well represented, and, at the request of the committee, some of the bronzes issued by the Art-Union will form part of the collection. It may reasonably be expected that this marvellous exhibition will give an impulse to many branches of art, while it will afford wholesome delight to thousands.

* Edgar Allan Poe.

Acting upon the principle which has always guided them,—that of spreading abroad the works issued by the Association,—your council gladly accepted an invitation to place all the Society's porcelain statuettes in the Ceramic Court in the Crystal Palace. The valuable and beautiful collection there, affords many striking instances of the importance to a country, even in a pecuniary point of view, of cultivating taste and bringing art to the aid of its manufactures. The attention paid to the arts in France from the time of Louis XIV. the establishment of the royal manufactories of tapestry, furniture, and china, the organization of drawing-schools, and other arrangements with the same end in view, have made Paris the manufactory for the world of objects of decorative utility.

From Australia, as heretofore, the council have received large lists of subscribers, and it is noteworthy that in that distant land an association has been formed under the title of "The Victorian Society of the Fine Arts," the main feature of which is an Art-Union.

The council have to lament the loss by death of two valuable colleagues, in the persons of Mr. Serjt. Thompson and Mr. John Britton; and two other vacancies have been caused by the retirement of Mr. C. Harrison and Mr. W. J. Smith. In their places, Mr. Thomas Grissell, Mr. Robert Hudson, the Rev. Edward Coleridge, and Mr. Henry Thomas Hope, have been elected.

The reserved fund now amounts to the sum of 7,695*l.*

A full statement of receipts and expenditure will be hereafter appended to this report.

The accounts have been audited as usual by two members of the general body of subscribers, Mr. J. Jones and Mr. J. B. Scott, whom the council beg leave to thank, and three members of the finance committee.

The sum set apart for prizes, to be selected by the prizeholders themselves, will be thus allotted, viz.:—

26	works at	£10	each.
30	„	15	„
24	„	20	„
24	„	25	„
16	„	30	„
14	„	35	„
6	„	50	„
5	„	60	„
3	„	75	„
2	„	100	„
1	„	150	„
1	„	200	„

To these are added:—

12 Bronzes of "Her Majesty on Horseback."
1 Bronze of "Satan Dismayed."
3 Bronzes of "Mercy on the Battle Field."
2 Bronzes in relief of "The Duke of Wellington entering Madrid."
10 Vases in iron.
50 Porcelain Statuettes, "The Stepping Stones."
10 Porcelain Statuettes, "The Dancing Girl reposing."
10 Terra Cotta Statuettes of "Thalia."
20 Silver Medals of Flaxman; and
30 Silver Medals of Sir Wm. Chambers.
450 Impressions of the Lithograph, "The Supper Scene."
250 of the Mezzotint of "Tyndale translating the Bible;" and
250 Volumes of Etchings.
Making in all 1,250 prizes.

The bronzes, porcelain statuettes, and vases, will be allotted to the first ninety-eight names drawn consecutively at the close of the general distribution. The medals, etchings, mezzotints, and lithographs, will be allotted to the names standing one hundredth and two hundredth in the list preceding and succeeding that of each of the prizeholders, determined as above stated, with a proviso that a prize has not fallen to that number to-day — in that case the prize will pass to the next succeeding name. Notice will be sent to those entitled to the bronzes, statuettes, medals, and prints in the course of two or three days. The other prizeholders will be informed of the result by to-night's post.

The prizeholders of last year purchased from the various exhibitions of the season 160 works of art, to the following amounts,—viz:—

From the Royal Academy	£989	0	0
The National Institution of Fine Arts.....	1,112	10	0
Society of British Artists.....	1,489	0	0
British Institution	517	0	0
Royal Scottish Academy	85	0	0
Water-Colour Society	587	4	0
New Water-Colour Society.....	228	11	0

With the permission of the Society of British Artists, the prizes were as usual exhibited in their gallery to the subscribers and their friends, and afterwards to the general public free and without limitation. It would be unnecessary now to say that not the slightest damage was done, or impropriety committed during the exhibition, but that the fact, in aid of endeavours to obtain for the British public free access to collections of works of art and public monuments, cannot be too often stated. In connexion with this question, the desirableness of having the public exhibitions open on the *Saturday* is very generally felt.

The steps now being taken to extend art-education in this country, carrying out views which have been urged for many years by your council, must before long bear good fruit.

The national collections, most valuable means of instruction, are becoming yearly larger and more important. The munificent act of Mr. Sheepshanks, to which the country owes the last addition, deserves to be widely known. Mr. Sheepshanks has presented to the nation his fine collection of 233 paintings and 103 drawings, by British artists, on certain easy conditions, one being that a suitable building, to be called "The National Gallery of British Art," shall be erected, to receive it on or near the estate at Kensington purchased by the Commissioners of the '51 Exhibition, together with any other works of art that may be subsequently placed there by other contributors, as he does not desire that the collection should bear his name. He has shown his anxiety to protect the interests of artists, by providing that any such engraving or reproduction of a picture that may be made shall be approved of by the artist of the picture, and that he shall be paid whatever sum may be received by the *ex-officio* trustee for the sale of such right. The donor suggests that arrangements should be made, so that the public, and especially the working classes, may be able to see the collections on Sunday afternoons: but this is not insisted on as a condition of the gift. For so good an act, so nobly done, Mr. Sheepshanks deserves the applause and gratitude of every lover of art and admirer of public spirit.

The building is now nearly completed, and the collection will probably be opened to the public before the expiration of the present spring.

In reference to the subject of public galleries, it may be mentioned that the council have had under consideration the practicability of establishing a permanent exhibition in connection with the society. The desirableness of producing artistic works in glass and in porcelain, to be distributed as prizes, has also been under discussion.

The intention of raising a public monument to the Duke of Wellington in St. Paul's Cathedral has been made to afford sculptors an opportunity to distinguish themselves, of which, we do not doubt, full advantage will be taken. Let us express a hope that such a course may be pursued for the determination of the competition as will give to the highest merit the highest reward, and secure for the country a work of art worthy of the object and the age.

Sculptors will soon, probably, be further appealed to, to suggest a design for a memorial of the Great Exhibition of '51. Funds have been provided, and the committee wait only for the consent of her Majesty to place it in Hyde-park on the site of the building in which the Exhibition was held. Before selecting the design for the Wellington monument, the Government will have to obtain a decision on the projects, now in Westminster-Hall, submitted by British and foreign architects for the public offices and the improvement and decoration of part of the metropolis.

The artistical adornment of cities,—important to the culture of the dwellers therein, to their happiness, to their health,—concerns us nearly, and it is earnestly to be hoped that the occasion will be made to develop the talents of our artists, and to aid in rendering London as eminent as a city, for fitness, beauty, and magnificence as its inhabitants are for skill, energy, and enterprise. To bring this about, such opportunities must be given to artists in our public buildings and elsewhere as may lead them to produce works of high teaching,—noble truths set forth so as to awaken noble feelings,—which may serve to convey to posterity a worthy idea of the mind and power of the nineteenth century. Had not Leonardo da Vinci been called upon to decorate the walls of the Dominican Convent of the Madonna delle Grazzie, the world would not have had "The Last Supper."

Our Government should keep these matters in view, acknowledge the importance of developing the artistic talent of the country, and act as if they knew the value of fine works of art.

A love and right appreciation of art on the part of the public will force this on, and to produce this feeling is a main object of the Art-Union of London.

GEORGE GODWIN, } Honorary
LEWIS POCOCK, } Secretaries."

The Chairman, in moving the adoption of the report, congratulated the meeting on the progress of their association. Twenty-one years ago they started with 400 members, and now their numbers had reached the enormous aggregate of 13,000. He should not long occupy their time, for he knew by experience the impatience of an Art-Union audience, but still he thought it due to the annual meeting to make one or two observations. Their institution was a private institution, but still having the sanction of Parliament, and it was because it was a private institution he thought it was most likely to be of public benefit. As a people's institution it had an immense amount of public sympathy, and he well remembered Dr. Chalmers asserting that public sympathy was the most powerful of all agents in forwarding any good work. The amount of public sympathy they had received was enough to hurl back "the foul scorn," as Queen Elizabeth had called it, that the English as a people were indifferent to art. They could turn to Exeter-hall to prove their taste for music, and to the Art-Union as an evidence of their love for the sister art. They could show the magnificent gifts of Messrs. Sheepshanks, Vernon, and Turner, and they must also admit that something was done by the State. To the State they owed the recent purchase of that master-piece of Paul Veronese, the "Meeting of Alexander and Darius;" and there was, in his opinion, a singular propriety in the circumstance that that picture would be first exhibited in this country amid the tall factory chimneys of Manchester. The returns of the Board of Trade showed a monthly increase of prosperity, and it was no novelty that a flourishing commerce carried arts and civilization in its train. Let them, then, hope that the progress of their wealth and commerce would still be coincident with the progress of art, and that every new year would add fresh strength and numbers to institutions like that whose anniversary they then celebrated. His Lordship concluded by moving the adoption of the report.

Mr. Francis Bennoch, F.S.A. in seconding the motion, referred to the coming of age of the society, pointed to the formation of an Art-Union at the antipodes, and concluded an excellent speech by showing the value of art to this country.

The report having been unanimously adopted,

Mr. Henry Weekes, A.R.A. proposed a vote of thanks to the council, and the hon. secretaries, and in the course of his observations, expressed his belief that there were few of our younger artists now eminent, who would not acknowledge the advantage they had derived from the Art-Union of London, at critical moments in their career.

Mr. Hurlstone, of the Society of British Artists, seconded the motion, which was carried unanimously.

Mr. Walter Taunton, as a junior member of the council, replied for that body, and, in the course of his address, eloquently exhorted those art students who felt within themselves the power of expressing fine thoughts, to persevere in a right course, assured that their efforts would not pass unregarded, and that helping hands were not far off.

In returning thanks, Mr. Godwin dwelt on the apathy of the Government in respect of art, and pointed to the new reading-room of the British Museum, the decoration of which was confined to a blue tint and gilt mouldings: the architect had proposed to fill every panel with a painting, and terminate each rib of the dome with a statue. The Government had not yet learnt that the beautiful was useful. With reference to a passage in the report, he mentioned the extraordinary fact that, at the private view of the two Water-colour Societies, on Saturday last, purchases were made to the amount of 3,500*l*. The speaker referred to the services of the assistant secretary, Mr. T. S. Watson, and concluded by moving a vote of thanks to Mr. Buckstone, for his kindness in granting the use of the theatre.

Mr. Lewis Pocock, F.S.A. seconded the proposition, having first expressed his thanks, as honorary secretary, for the previous vote; and the resolution being carried, Mr. Sudlow and Mr. Walch accepted the office of scrutineers, and Miss Marian Whitehead and Miss Stewart having consented to draw the numbers, the distribution commenced. Thanks were afterwards voted to the scrutineers, and to the two ladies, and to Lord Monteagle for his admirable address and kind conduct in the chair, and the meeting then broke up.

The following is a list of the principal prize-holders:—

200*l*.—Mallett, T. Catherine-street, Lambeth.

150*l*.—Rhead, —, Tavistock.

100*l*.—Pound, J. Lee, Kent; Sloane, J. Dungannon.

75*l*.—Boucneau, A. Warren-street; Campbell, J. S. Leadenhall-street; Harris, S. Douglas, Isle of Man.

60*l*.—Bennett, G. L. Hong-Kong; Day, George, Blackheath-hill; Guy, W. 12, Great Turner-street; Self, H. Torrington-place; Smith, N. Great Cumberland-place.

50*l*.—Bastable, E. Portsea; Combs, F. Stafford; Hartley, R. Morecomb; Miskin, Miss M. A. York-road; Powell, T. Walworth; Wells, H. T. Stratford-place.

35*l*.—Adams, D. Boston, U.S.; Boulnois, E. Pocklington; Dodd, H. Fleetwood; Fairclough, T. M. St. George's-in-the-East; Johnson, S. Trinity-square; Johnson, R. A. Bishopswearmouth; Marais, P. Cape Town; Noyes, John, Notting-hill; Oliver, G. Jun. Shotter's-mill; Paton, A. P. Greenock; Robinson, G. E. Newark; Stewart, A. Camden-town; Tilley, J. Hobart Town; Wartnaby, R. Northampton.

30*l*.—Beech, W. H. Manilla; Child, T. Leeds; Coakley, A. J. Bath; Fairfoot, H. S. Doughty-street; Faulkes, W. Whitchurch; Gent, F. *Daily News*; Gough, Mrs. R. D. Willenhall; Hall, W. Adelaide; Irvine, John, Hungerford-wharf; Mercer, C. per Grindley and Co.; Newcombe, F. B. Long Melford; Nicholson, Wm. Maidenhead; Sparrow, A. Liverpool; Saunders, Mrs. Kidderminster; Saunders, J. Hoxton; Stafford, R. Hyde-park-square.

25*l*.—Bulger, Lieut. 69th regt.; Bowling, T. Ramsgate; Brady, A. Admiralty, Somerset-house; Clinch, Capt. Hobart-town; Dodd, J. Liverpool; Foster, J. Manchester; Francis, J. Birmingham; Gowing, J. W. Lowestoft; Henty, E. Portland, Victoria; Hewlett, A. Bolton; Holden, O. Whitstable; Houghton, T. Edward-terrace; Hughes, C. Northampton; Longbottom, B. Leeds; Mayeur, S. A. 62, Tredegar-square; M'Lardy, Hy. Calcutta; McLean, Colonel, Penrith; Penn, W. Chadwick; Ramage, Geo. Old Kent-road; Rowe, J. C. B. Gracechurch-street; Salignac, G. Mark-lane; Strickland, C. J. Launceston; Shadforth, Lieut. gen. Durham; Underwood, Rev. —, Liverpool.

20*l*.—Benton, W. Highbury New-park; Breffit, Mrs. Glebe, Lee; Budden, J. L. Fenchurch-street; Clement, Jas. Cletto; Clowes, F. Norwich; Cooke, S. C. Horstead; Devenish, J. A. Weymouth; Farrar, W. L. Lincoln's-inn-fields; Fell, A. Nelson, N. Z.; Gerring, R. Farringdon; Haydon, Chas. jun. Wandsworth; Johnson, W. R. Nantwich; King, Mrs. W. Connaught-square; Longstaff, Dr. Wandsworth; Macauley, J. J. Rochester; Mills, F. A. Athy, Ireland; Randolph, Mrs. Sanderstead; Sheath, Mrs. E. Erdington: Simpson, Rev. J. D. Stoulton; Stockdale, G. Throgmorton-street; Tarratt, W. Wolverhampton; Tuke, Dr. Conservative Club; Watkins, T. Peckham; Wemyss, Mrs. Gen. Bath.

15*l*.—Aylmer, Miss, Downham-market; Bailey, Mrs. Bow; Bedford, Rev. W. K. Sutton Coldfield; Baker, Mrs. Chepstow; Clarke, R. St. George's-terrace; Coke, E. J. St. Vincent; Dawban, R. Wisbeach; Dunt, J. E. Cockspur-street; Evered, R. Tavistock-hill; Foley, J. G. Trowbridge; Heath, J. T. Chepstow; Liveng, Mrs. W. Maidahill; Lower, R. W. Lewes; Lowther, W. Royal Exchange; Mackerness, Rev. G. R. Ashburne; Morant, G. J. Hendon; Norton, Dr. Westbourne-grove; Oxley, H. Commercial-street; Pollett, W. Ashton; Reilly, T. Dublin; Rozea, J. Milton-street; Sayer, R. B. Newport; Smith, J. N. St. John's-wood-park; Steele, Brig.-gen. Smith and Elder's; Taylor, W. S. Golden-square; Thornbrough, Mrs. Westbourne-terrace; Tomkin, S. Cape Town; Whitehouse, G. Westbromwich; Wood, N. Hetton-hall; Young, W. Bolton.

10*l*.—A. Z. 184, Tottenham-court-road; Alleyne, S. Tunbridge; Austin, T. Melbourne; Brown, H. Birkenhead; Collins, J. 115, Regent-street; Davis, R. *Daily News*; Denny, D. N. Rochester, U.S.; Douglass, Jno. Lancaster; Evans, Mrs. F. G. Horseferry-road; Francis, G. St. George's-street East; Gregory, E. Guildford-street; Harvey, J. Singapore; Hay, Mrs. A. Sheffield; Hoggard, G. Wellington-place; Jones, J. Kentish-town; Lockwood, T. M. Chester; Norfolk, H. G. the Duke of; Norman, G. Cheltenham; Oatway, W. V. Bideford; Peat, D. Thirsk; Prower, Rev. Canon, Henrietta-street; Rogers, Mrs. F. Petersfield; Simpson, T. Clifton, York; Simon, G. Denmark-hill; Stewartson, Gn. Fakenham; Williams, J. W. Huddersfield.

CONDITION OF THE ARTIZAN; AND THE CONDITION OF WOMEN.

TIME was, they say, when the secluded ground of literature or art was a refuge needed, for minds pained in the contemplation of evils—then too great for remedy. Whilst the world political and social consumed its intestine elements—murder and rapine as instruments of the governing classes, and excesses equally horrible as the revulsion of the governed, darkening the vista of the future—so that the end of earthly things was sometimes believed to be nigh,—when vice and sensuality were in the higher places; and plague and pestilence decimated the people,—then, as it might be said, any creed of ultimate perfectibility could have few believers; hope abandoned the best of hearts; and the learning of the Benedictine cloister, or the aspirations of artists, were as the solace for the individual mind, even more than they were the means of direct influence in their office of moral regeneration. Now, however, if there be much cause for sadness in what exists, there is evidence that each body of men, or each individual in his sphere, may help somewhat the great work that there is to do,—and which help is both the duty of man's existence and one which returns the only solid gratification.

Such work, set before the architect, is to be hedged in neither by the utmost limits of art and science, nor the widening field of professional study. Exigencies divide the practice of architecture into many channels, whilst the ideal architect is every day being surrounded with more attributes; and so must it continue. But, whatever yet has to be supplied for the furtherance of our qualifications, the *field* cannot ever be bounded unless with some abrogation of the office of the artist and of the duty of the man. Therefore let no one narrow his mind to any standard of what may be his immediate calling; but rather let him sympathise with the great world, with the throes and agonies of its deliverance, and with the exertions of all who are earnestly working at the problems of its

growth. Such is the true course for all of us—there can be success in no other. Interest let there be taken in any questions which concern the welfare of society or the comfort of sections of the people,—interest in the educational question, and in every one that has sanitary, moral, and social bearings—whether or not immediately appearing to belong to architecture and building.

Viewed in the light of narrowed *interest*, or of wider duty, there is one question that may well be deemed the most important to society, of any to which attention could be given; and it is now, though tardily, claiming notice more probably than has before been accorded to it. Here, then, let no architect—no one who values the means that forward social ends, or believes in any benefits to accrue from moral training, cultivation of intellect, or the special pursuit of art,—let no employer of labour—no one who interests himself in the condition of the working classes,—no one with one touch of nature, or of kin—whether with those whose lot is lowly, or whose station is high—think that he has little concern with our subject, though it may seem one that is foreign, in title rather than in fact, to what may be the general matter of our journal.

Female education and the social position of women,—as properly part of the question of improvement of the condition of the artizan—is a subject of momentous interest to every reader of these pages; but it has also universal relations, such as no thoughtful mind can pursue without the deep sense of duty that will follow upon clear convictions. So presented, any one branch of our subject merges in with the general magnitude of an evil which, if we say, it pervades all the fabric of society, we make no assertion—the result of yesterday's opinions, or that differs from the conclusions which are now stated in glowing language by others. Of *rights of women*, indeed, there are none, other than are the rights of men; but, equality of position has ever been denied, by custom and by law, to the half of nature's work, which, if only not endowed with the same qualities as the other half, is supplied with such as form part of the one creation—in which each half is complementary to, or incomplete without the other. In place of recognition of this equality of duty, of intellect, and of right,—this "communion of labour," as it is styled by the latest and best of the writers on the subject,*—the position of woman is still that of a dependant,—one who is to be indulged and humoured in one sphere, and, sad to say, too generally, made a victim in others. Jealously excluded from the bulk of the employment for which she would be fitted; restricted, till lately, in the cultivation of her intellect; her existence viewed as "merged in that of the man" (a condition which would be less serious, were it really fulfilled),—woman has no resource from other dependant positions, except marriage; and has too much interested inducement towards that provision for herself, to ensure that the relation shall be reciprocal in acquittance of duty, and the interchange of affection. Often not trained for any duties of a wife,—not furnished with qualifications for the education and care of a family, or any which would relieve some of the cost of her maintenance; sometimes in the higher class, considering any sort of labour a degradation; not encouraged in developing any powers of her mind; neither the able helpmate of the artizan, nor the intelligent companion of the intellectual man,—she suffers from, whilst she is made to perpetuate, a condition of things whereby the married state too often presents itself rather as a danger to be avoided, than as it should be, one of the objects of life. It may seem like a parodox,—but the assertion will convey what is obvious to all who have looked into the subject,—that if there were any real alternative to the woman from marriage, marriages would be more numerous, as more frequently prosperous and happy. True it is that, as in the case of all social questions, one circumstance of evil cannot be disconnected in an estimation of it—as a result, or even an acting cause—from other evils,—though each may be widely separated in position from another. You may provide the working man with a wife trained for the duties of a home; but the home also must be provided,—and with appliances, without which your work will be undone. Again, the provision of harmless objects of amusement; the extension of free libraries, of baths and wash-houses, and schools; the furnishing opportunities for small investments; and even such improvement in the means of communication between different parts of the metropolis as would lessen the tax to the workman, and prevent the necessity of resorting to a public-house at meal-times,—all these are deserving of attention, but can be only referred to here, so much as may be required to show that their consideration is not neglected by us.

Thus there are, indeed, complicated evils, resulting from the position and training of women, varying in each class of society,—but from each class acting and re-acting, on one another. All come, as we believe, from like false directions taken at the starting-point of life,—from the disturbance of natural tendencies—and ignorance widely spread, or practically exemplified, as to that which a noble band of female advocates have truly claimed as the "*mission*" of their sex. Such being the nature of the subject, are *we* to take the course which some might deem expedient, of speaking only to the experience of the working classes, and the sympathies of our readers, or to treat the real question,—that in which the world at large is interested? Illustrations, however, drawn from one class, can readily be made to show what exists elsewhere. Pausing, let us ask, is there any reason other than prejudice, why architecture should not be followed more than as a study, by ladies? We put this question seriously;—is there anything in the work of *architectural* design and drawing, beyond what is exactly suited to the female mind and hand? Even further, would it be a thing quite startling to know that the specification of an architect was drawn out by his wife, or copied by his daughters? Is it impossible to the female intellect to square dimensions (whilst one of the best works on Arithmetic, the "Rational Arithmetic," of Mrs. G. R. Porter, is the work of a woman),—impossible to money out an account; and could it rightly be that "society" should ever after the discovery that such things were done, point at the hapless family who thus made up the true "Communion of Labour." Tell us there are other duties of a home, and we are hardly answered. Are these duties fulfilled in one rank of life, or in another: or in one case, is not the valued direction wanting? and for the home of the working man, is there the saving and ready hand? The fact is, if we may so state it from our own belief and knowledge, that the best examples of the performance of housewifely duties are amongst the most intellectual of women. We know of one,—having the name of one deceased who several years ago contributed articles which we valued, on perspective, to these pages,—she, her friends say, is equally apt in the cutting out a garment, in boiling a potato, in working out a problem in geometry, or in writing an article for a quarterly review. Happily is she placed as the head of a school,—one where music is not taught to those who can never master it, and where philosophy and science, as well as duties and "accomplishments," are not tabooed. Look at what even now, is done by the women who equally adorn our literature and brighten a home. The writer of some letters on "Industrial Girls' Schools," whose initials do not conceal the thoughtful mind and able pen of Mrs. Austin, lately said, speaking of this question of the household duties, "The notion that these accomplishments are inconsistent with high mental culture, refined taste, or feminine grace, is altogether false. The conduct of a household with order and economy, makes large demands on the reason and on the faculties of observation and discernment, and leaves these faculties strengthened for their application to purely intellectual objects. The conduct of a household with grace and dignity, makes large demands on the sense of fitness, harmony, and beauty, and ripens that sense for exercise on purely æsthetical objects.

Surely the slang now so much in vogue among young ladies (*proh pudor!*) does not seem to show that the neglect of domestic occupations is necessarily followed by refinement of the taste."*

And elsewhere contemplating one hopeful, but too solitary example of a school fitted for the training of the future wife of the working man, she says, "This, thought I, is the real type and expression of the life and duty of woman. Take it at whichever end of the social scale you will, there is nothing higher than this:—the comfort, order, and good government of the house, and the instruction of the young. To fit herself to fulfil these paramount duties of her sex, a woman must acquire qualities intellectual and moral, second to none possessed by man or woman."

We well remember, many years ago, when there occurred one of the periodic outbursts of the educational movement which has so much expanded since, how great was the value attached to infant-schools,—as the foundation for all education,—how much honour was given to one who claimed to have originated them. We were then struck by the omission of reference on all public occasions to the true foundation,—the education of women. We have lived to see such exertions as we could make, to which then there was no response,—such complaints as were then denied, as to the deficiency of female education, and the disproportionate attention given to "accomplishments" and to many paltry substitutes for the fine arts, justified and supported by the brilliant phalanx of writers since risen in the ranks of womanhood itself. Still, however, the social question is but slowly advancing,—though some amendment of the law which gives all the earnings of a wife and mother to a brutal ruffian, or allows a husband to be kept responsible for the debts of a shameless wife, has only too long been under the consideration of a Parliament and a Government which takes many other things leading to lamentable results far too easily.

What with the sort of dogma that Government is not to interfere with certain arrangements,—though Government does interfere—as in the removal of dwellings, and the creation of waste ground—in the way of doing ill; things are left to solve their own problem, by going the way of social ruin and eternal shame. Without entering upon any of those questions of capital and labour, which can be so readily settled by some who just leave out a few important considerations,—there are surely many means now not employed, by which the governing powers or the leading minds of a nation could benefit the masses of the people, and peradventure by an indirect course, secure the other objects that have been contended for. The doctrine that works like that of the provision of improved dwellings, must be effected by private enterprise, would be very well *did* private enterprise act *at all* in that direction. But, whilst such enterprise is idle, demoralization and misery are not idle; and it seems not to occur to the mind versed in legislation, or bred in office, that the constant sore which is open is more painful than the operation would be for the removal of it,—a sore, too, that may fester on to peril the constitution or the state.

This digression on a point so intimately allied to the one that we have been treating, we could not avoid at this moment. What we have for the present before us, is the education of the home in another aspect. Now, "what is *education?*"—what is the signification of the term?—is a question on which there has lately been much careful splitting of hairs. There is a distinction made between *education* and *instruction*,—which, as there could be no dispute about conclusions, we need not enter into. But, heretofore, when we have touched upon another question—that of the education for our own profession,—we have had to urge the simple truth, that education at all times should be viewed, and directly given, as the preparation for the future life. If the education or instruction of women could be set on the course thus plainly designated, how vast an amount of benefit would accrue to the condition of the artizan, how excellent a chance might there be that a wider

* "The Communion of Labour: a Second Lecture, on the Social Employments of Women," by Mrs. Jameson, author of "Sisters of Charity at Home and Abroad." London: Longman and Co.

* The *Athenæum*, November 22nd, 1856.

social evil could be removed. The education of the woman should be equally such as will fit her to be in an independent position, or to acquit herself of the duties of the family and household. Whatever may be requisites for the married state in the higher classes, the wife of the working man is hardly ever competent in any portion of her duties. From such a home as there may be in a basement or a single room, she was launched at childhood through the glitter and temptations of London, to earn at some uninteresting drudgery, in a vitiated atmosphere, during hours far longer than those during which men work, wages for which it is incapable of demonstration that food and other requisites can be obtained. Need we say what too generally at such an age must be the result,—it is one most awful, whilst least to be wondered at. Or otherwise, if the girl is fortunate, she may be sent to a school, where we are told she may answer to, "Who was Cyrus?" but grows to womanhood without knowing how to clean a room, to make a shirt, to buy good food, or to cook a dinner. Or she becomes a servant in a family, where everything is not her own, and waste and extravagance are to be found at least in the kitchen. In any case, what wife have we been educating for the working man? The writer, from whom we have already quoted, in words which best convey all that we could express, says,—

"This, if I am not greatly mistaken, is the root to which we must trace much of that bitter harvest of depravity and brutality of which we daily see examples in our newspapers. It is now seven years ago, that a man of singular intelligence, and of the widest and most intimate acquaintance with the working classes, foreman in an establishment in which he presided over five or six hundred of the best sort of artisans, uttered words which struck me as giving the dreariest insight into the condition and prospects of our working classes. I was making some inquiries concerning wages, and, hearing how large these were, I expressed the hope, or rather expectation, that these men laid by money, and were well off. Shocked at hearing that hardly one of them was worth a shilling, I inquired the reason. 'Was it vice—drunkenness?'—'No, those were rare exceptions; we could not employ drunkards in our business. It is the bad management of the wives. The money is muddled away. To say the truth,' added he, '*there is no such thing now as a poor man's wife.*' What a sentence to pronounce on the homes of England! The admiration with which one witnesses the energetic and intelligent labours of this noble race of men, is turned to pity, when one thinks that all their wondrous skill and industry fails to secure to them the natural object and merited reward of man's toil—a comfortable home, and a decent provision for old age."

And she says in a subsequent letter, she is convinced,—

"That all the perplexities and grievances of mistresses, the inefficiency, and recklessness, and corruption of servants, and the miserable deficiencies of working men's wives, are only symptoms of a general disorder of our social body (no member of which has a distinct life), and that in order to arrive at a radical cure of any one of these evils, we must go into a complete examination of their mutual relation and common source."

Such conclusions are those of all who have inquired into this solemn question. A writer in the *North British Review*, in an article on "Outrages on Woman," attributing, as he might well do, the ill-treatment of wives not merely to the bad character of the man, but to the miserable dwellings, refers to the ignorance of "common things," and the want of all training in womanly duties and responsibilities, on the part of the wife. The deficiency is not a reason why wives should be beaten and stamped upon, but it is a cause to be taken into consideration by philanthropists and legislators. And, again, the greatest one of all our social evils, attributed to the restriction of many employments which would be fitted for women, to the male sex, is due also to the circumstance that the married state does not present to men, we might say of any class, the inducements which it was designed to hold out,—sympathy, and companionship, and a home. Facts as they are too painfully presented are gaining the tardy notice of the London journals; but viewing the position of either sex, the case has its elements of danger to the social fabric. Low standards of right,—even degrading vices like that of drunkenness,—are, we apprehend, likely to prevail where the reciprocal influences of the sexes in mind and intellect, are not felt. The existence of a large unmarried population, or of one which only *endures* the obligations of the married life, is, we are sure, an element of weakness under any form of government. Is it a hopeless prospect for an old, a civilized country, that "The Communion of Love and the Communion of Labour" should form, as was its purpose, the strength and stay of a state,—should exist as the pledge of good order, and even progressive position. So far from its being even the concern of the State to check the growth of population to a standard of the production of food in the country itself, we can conceive the possibility of a very different principle of action. With the wide world open to the Anglo-Saxon race; with possible improvements at home in agriculture, and discoveries even as to the production of food from new sources—as from substances which are now cast aside; with every year accelerated means of communication, by leviathan steam-ships and oceanic telegraphs,—all parts of the world may be in like prosperity and in family union; and whilst the man of energy and action will extend the triumphs of skill and the results of industry around the globe, the man of thought and intellect will, year by year, address a wider British public from his seat at home. The Government of this country have only to prove equal to the occasion, to keep apace with the growth of the population which will be attendant upon the progressing sanitary and social amelioration,—and not as now, practically to apply a "preventive check," in apathy to the greatest and most pervading ills. To the women of England, whether saying with Mrs. Pochin (whose pamphlet,* let not the masculine reader disregard, for, the views taken, may be now only in advance of our time), that they have "very few real friends among men,"—"very few who examine their real wants; who would establish and respect their just claims," "who would encourage their efforts at improvement, and rejoice to see them elevated into a truer and nobler life, even if it should involve a little sacrifice to themselves;" or with Mrs. Jameson, that there is "in general," "among men—superior men—a strong generous sympathy" with the cause she advocates—the "noble and good," as she has "found them," and "raised in their manly power above all vulgar masculine jealousies,"—we would offer gladly such sympathy and encouragement as our words and aid can give, conscious that such a cause as theirs is not alone that of one class, or one sex, but one which concerns the whole human family.

ARCHITECTURAL NOTES, PRINCIPALLY ECCLESIASTICAL—IN HOLLAND, GERMANY, AND SWITZERLAND †

THE stone and workmanship of most of the Rhenish churches is excellent, which accounts for their preservation and freshness after the lapse of 600 to 800 years.‡ They mark a singular period of prosperity and progress in the locality, and, like the temples of Baalbec and Palmyra, they indicate the course of an almost forgotten commercial intercourse, which, like the noble river on whose bosom it was carried on, fructified and enriched the countries through which it flowed.

The structures in this particular style most worthy of study are the three great cathedrals of Spires, Worms, and Mentz; the church of St. Castor, at Coblentz; at Cologne, the churches of the Holy Apostles, St. Gereon, and St. Maria in Capitolio, the latter of which, according to Hope, is the counterpart of a Greek church in the ruins of Seleucia. There are also many others deserving notice in studying the progress and variations in the style, amongst which may be mentioned Bonn, Andernach, Boppart, Laach, Bacharach, the minor churches in Cologne, and the cathedral at Gelnhausen,—a very late specimen.

This peculiar style of Rhenish architecture prevailed for about two centuries and a half. The introduction of the pointed arch, though it tended to lighten its proportions, and was not without influence on its arrangements and forms, yet left the distribution and general effect much as before. The cathedral of Gelnhausen, attributed to the early part of the 13th century, and in the pointed style, displays external galleries and circular corbel tables, has plain low gables to each face of the octagonal apse and of the tower, and an octagonal cupola, though carried, not on pendentives, but angular arches. About the middle of the 13th century the style of architecture in the Rhineland was completely changed by the sudden introduction of the contemporaneous architecture of central France, probably the noblest type of Mediæval art in existence, and at that time in its most palmy state. The cathedral of Chartres was completed in the early part of the century, though much of the work belongs to the preceding one. Rheims was finished about 1230. Amiens was commenced about the same period. The choir of Beauvais was constructed between 1240 and 1272. To rival, and if possible to surpass these magnificent structures, the cathedral of Cologne was founded, and the works commenced in the year 1248, the choir having been consecrated in the year 1322. The name of the architect of this world-famed building has not been handed down to posterity. That he was a Frenchman seems extremely probable: in fact, the name of Master Gerhard, of whom we first catch a glimpse in the year 1252, as master builder, may be only the German form of the common French name of Gerard. Be this as it may, however, of the French origin of the design there can be no doubt: any one who will compare the three ground-plans of Amiens, Beauvais, and Cologne, will at once perceive that the systems of projection, arrangement, and distribution, are identical. Each of the choirs has double aisles on each side. Each has a polygonal apse in seven plans, with projecting three-sided chapels between the buttresses. At Amiens the extreme east, or Lady Chapel, projects as is usual in England. The complicated system of vaulting, radiating from the *rond-point* of the choir through the aisles and chapels, of which it is extremely difficult to find two examples alike, is the same in the three buildings. The parallel might be run through the whole building, in the construction, style of tracery, of mouldings and ornamentation, though in these allowance must be made for the fact, that when works in the Middle Ages were continued for any lengthened period, even on the same general design, much was left to the individual skill and taste of the workman, which varied of course with circumstances. Now in France every step in the progress and development of this school of architecture can be traced back to its origin, whilst in Germany it presents itself suddenly, without preparation or growth, complete and perfect in all its parts.

To attempt a detailed criticism of a building so well known would be out of place: that if completed it would be the finest Gothic building in the world, few will be disposed to doubt.

The principle of counterpoise and mutual dependence uniting every part, so characteristic of the best age of Gothic; the vigorous feeling of buoyancy, power, and life, which this system is calculated to impart, is nowhere shown in more healthy development; yet the candid observer cannot but admit that harmony of proportion has been somewhat sacrificed in the conception, to breadth and height. The five aisles in width running through from end to end, combined with the enormous height of the central vaulting, give an appearance of stuntedness to the building, which its vast size ought not to admit.

The length of Amiens Cathedral, measuring over all, is somewhat greater than Cologne, whilst its breadth over the transepts is considerably less, the nave also has only one aisle on each side. These proportions give the building a sublimity of perspective internally, which it is to be feared Cologne if completed could not surpass.

On the principle that "a living dog is better than a dead lion," it must be admitted that *in the existing state* of the buildings, Amiens is the nobler specimen of the two. Of their relative effects when completed, possibly some critic, writing about the year 2456, may be able to judge.

There is not much of modern architecture of which Cologne has to boast. One of the innumerable family of Jean Marie Farina has recently erected a new depôt in the Glocken Gasse, in the modern German Gothic style, of which the principal characteristics are square stiff panels, rigid lines, and geometrical tracery. Nearly opposite, in the same street, is an erection not often met with in the midst of a crowded town. It is a large handsome conservatory

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* "The Right of Women to exercise the Elective Franchise," by "Justitia." John Chapman.

† See p. 205, *ante*.

‡ The stone is sandstone, of a light red or pink colour, pleasing to the eye, and capable of a considerable degree of finish.

on the ground floor, and abutting on the street, open to the observation of the passers by. The interior is rather elegant, something in the Alhambra style, with polychromic decorations, and a fine collection of exotic plants.

Leaving the ecclesiastical buildings on the Middle Rhine, which we have grouped into one class with very striking resemblances, I will next refer to a few notes on the Cathedral of Strasburg. The building is now in a beautiful state of repair, the interior being thoroughly cleaned, and every defacement removed. The light pink colour of the sandstone, lighted up by the brilliant glancing hues from the profusion of stained glass, imparts a peculiarly gorgeous effect to the first aspect of the inside of the building. This character is further strengthened by the bold solid style of the east end and transepts, contrasted with the light and elegant proportions of the nave and aisles.

The earliest part of the building is the choir and transepts, which partake of the character of the Rhenish school of architecture, but are not exclusively of that class. The choir extends westward to the west side of the transepts, and is raised about 8 feet above the general level of the floor, with a Romanesque crypt underneath. The east end is apsidal, projecting only its own radius, and vaulted hemispherically with brick. The transepts are square, without aisles, with a cylindrical column in the centre of each. This part of the structure may be safely ascribed to the latter part of the 12th century. The arches of construction are pointed; the vaulting of mixed form. The usual octagonal cupola is carried up over the intersection, covered by a ribbed and vaulted dome. To enter into a minute enumeration of the several details would be tedious, but there is for the attentive observer much in every part of this building worthy of most careful study. The workmanship of the whole is excellent, and the design evidently by a master mind. There is a fine semicircular arched deeply recessed portal in the north transept, with grotesque capitals. The large rose windows in the transepts, formed by a series of small circles, are curious and interesting.

In the east wall of the south transept there is a pointed triple-arched opening, under a semicircular canopy, to which has been added a low open balustrade, of Flamboyant character, of very beautiful design. Leaning on this balustrade stands a figure in stone, the size of life, and painted in a very life-like manner, said to represent the architect, Erwin von Steinbach, to whose genius we owe at least the western portion of the building.

The nave is a noble specimen of the very best style of 13th-century Gothic, and decidedly French in character and treatment. The three aisles are wider than is usual in proportion to their height. The piers are shafted, with foliage capitals. The triforium consists of light open tracery, pierced behind for windows, as is the case at Amiens.

The clerestory windows are large, in four lights, with geometrical tracery heads, not unlike the Early English windows in Lincoln Cathedral and Beverley Minster. The windows of the side aisles are similar in character, and of large dimensions: a blank arcade with detached shafts, and a stone bench, extends under these windows. The vaulting is of the usual simple character of French 13th-century work, with bold cross ribs (*arcs doubleaux*), and lighter cross springers (*arcs ogives*), and pier ribs (*formerets*). Each bay is slightly domical. The two great western towers are carried on arches opening into the nave aisles. The work in this part differs in detail from the nave, and appears of later date, though the style is still preserved. There are here some fine sedilia, with rich crocketted canopies.

There are two very remarkable chapels occupying the two eastern bays of the nave, built outside, and opening from the side aisles. These are both of the latest style of Gothic; that on the south side is probably the latest in construction. On one of the walls appears the date of 1480. The chapel on the north side is vaulted semicircularly with fan tracery, the ribs interpenetrating and crossing each other, with the ends cut off square. The chapel on the north side is vaulted with two low domes, intersected by undercut groins. On this ground-work there is spread out a rich interlineation of ribs in the most fantastical forms, intersecting and interpenetrating, cut off abruptly, and twisted into all manner of shapes, in which the real principles of construction are ostentatiously ignored. There is in these chapels a profusion of rich carving, the execution of which is admirable, whatever exception might be taken to the taste.

On the north side of the nave stands a stone pulpit, of early 15th century character, probably one of the most elaborate in existence, being one incrustation of minute tracery, foliage, tabernacle work, and statues of admirable execution.

There is a rich profusion of stained glass in the windows, principally old. The pierced triforium windows stained in the rich hues of antique glass impart a peculiarly sparkling effect to the interior.

The exterior of the building is equally worthy of study. The respective portions correspond of course in style with the corresponding compartments of the interior, and do not need specific description. The east end exhibits its Rhenish descent by the usual octagonal cupola rising above the intersection, surrounded by the open arcaded gallery. The side chapels to which allusion has been made present externally very curious illustrations of the Flamboyant style, and of the system of interpenetration. In an antechapel added on the north side of the north transept this is carried to an extent I never saw equalled. The principle adopted seems to be, to let every moulding penetrate every other it comes in contact with, and then to cut it off abruptly.

A screen or open cloister is carried along both sides of the church in the Flamboyant style, with open tracery without glazing, and surmounted by an open battlement.

The far-famed spires are a noble specimen of mathematical skill and architectural construction. To carry up a structure to the height of 474 feet (the highest in the world*), the greater part of it being of a light, open, airy character, and so to frame its design and construction that without any subsequent binding and cramping it boldly maintains its uprightness and stability unimpaired after the lapse of more than 400 years,—is surely enough to immortalise the memory of any man, particularly as the same achievement is not likely, so far as we can foresee, to be accomplished again.

Notwithstanding the lightness and elegance of the structure, I am not sure that the form of general outline adopted is the best adapted to embody the idea of aspiration naturally expected from it. The sudden change from the vertical to the sloping forms gives a stunted appearance to the summit less pleasing than the gradually pyramidising lines of the steeple of Antwerp.

The workmanship and materials are of the very best quality, and making due allowance for picturesque weather-stains, it is in excellent repair.

The Minster of Freiberg, distant from Strasburg about forty miles, is another very noble specimen of Mediæval art. The nave and western tower and lantern belong to the same school and period as those of Strasburg, and are equally excellent both in design and execution. Some of the details are peculiar. There is no triforium in the nave, its place being supplied by a set-off in the wall over the pier arches, fenced by an open tracery balustrade, which is level with the cill of the clerestory windows. The vaulting resembles that of the nave of Strasburg. The western tower is single, placed in the centre of the front, the lower portion forming an open lofty porch. The side aisles have the arcade along the walls under the windows, as at Strasburg. This portion of the building is of the middle or latter end of the 13th century, about coeval with Strasburg. The transepts are Romanesque, of late 12th century work, some of the arches being slightly pointed; there are rose windows at the extremities of the arms of the cross, with triple semicircular-headed windows underneath. The usual Rhenish association is preserved by an octagonal cupola on pendentives over the intersection. This has been modernized. The choir and its aisles are Flamboyant in style of very late date; the choir-screen is, in fact, Renaissance in character, with Flamboyant balustrade. The east end is semi-octagonal: the aisles of the choir are low, and extend round the east end in a zig-zag form, somewhat resembling the aisles of Henry VII.'s Chapel, at Westminster. The vaulting of the choir and its aisles is singularly complicated and interlaced, resembling the side chapels at Strasburg already described: a little of the old Romanesque work still remains about the west end of the choir. There is a fine stone pulpit of late date in the nave. The aisle windows are glazed with fine antique stained glass of brilliant colours.

Externally the building is well placed to be seen to advantage, standing in the middle of a large open "*place*," surrounded by antique buildings. The tower and open lantern, though resembling Strasburg in general design, have much beauty peculiar to themselves. The porch underneath the tower is finely conceived. An inner portal, with a centre shaft, occupied by figures of the Virgin and child, and flanked by four rows of statues on each side, occupies the whole breadth of the back wall. The doors have square heads, and the arched tympanum is richly sculptured. An arcade is carried round the side walls of the porch, with a statue under each arch, and a canopy over. The exterior archway has eight shafts and orders of mouldings.

The architecture of the exterior presents specimens of all styles from the Romanesque to the latest Mediæval, all good in their kind. The slender Rhenish turrets at the re-entering angle of the transepts and choir, still remain, but the upper portions have been modified to a later style. The whole is in excellent preservation and repair. The colour of the stone is a light red, which receives from the effects of time and weather, a beautiful mellowness and glow, which it is difficult to describe.

The town-hall facing the south side of the Minster, is a curious low building of the 16th century, with an arcaded front, and projecting turrets at the angles, carried on corbels, and surmounted by spirets, covered with coloured tiles. The groining under the arcades is of the same interlaced and interpenetrating design, as the chapels already alluded to.

From Freiburg our course lay through Switzerland. It would be tedious and uninteresting to submit in detail memoranda, made in the various small towns of this country, more remarkable for its natural beauties than for any pre-eminence in architectural skill; its remains in any case are more interesting archæologically than architecturally. The ancient specimens of domestic building in stone are German in style, and in many cases have been ornamented with larges frescoes externally. Most of these have perished, or have been defaced; but a few still remain at Schaffhausen and elsewhere.

The modern street architecture is usually Parisian in its style, detail, and arrangement. The timber buildings which constitute what we usually understand by Swiss architecture, are found the most complete and commodious in the Canton of Berne. The great principle adopted, is to combine all the buildings of the house and farmsteading under one roof. Considering the severe winters and the accumulations of snow in the valleys, this is probably the best arrangement under the peculiar circumstances of the country. The cattle are housed on the "*rez de chaussé*," the house occupies one portion of the upper stories, surrounded by a projecting wooden balcony, flanked by the buildings of the barn and other stores, the eaves of the roof extending its shelter frequently by 6 or 8 feet projection beyond the walls. When kept in good order, with a thriving look of prosperity surrounding them, these huge masses have a very picturesque look; but in upland, sterile districts, such as the Upper Vallais, the timber buildings have a very squalid and dilapidated aspect.

I will conclude this paper by a few remarks on some of the Swiss cathedrals, which have been recently cleaned and restored.

Geneva, the cradle of Presbyterian Protestantism, preserved its cathedral at the Reformation. It is of the 12th century transition style, extending down to the beginning of the 13th. The nave is only four bays in length, the transepts two bays each, and the choir one bay, besides the apsidal end. The piers are cylindrical, with grotesque and classical capitals: the pier arches are pointed, with Romanesque details; the triforium semi-circular. The clerestory windows are triple, with detached shafts, something resembling those of the Temple Church, London, and with foliaged capitals. The vaulting is pointed, with strong cross-ribs, lighter cross-springers, without pier-ribs, and is domical in each compartment. The ends of the transepts have rather fine rose windows.

There are projecting chapels round the apsidal end of the choir, the lower windows of which are filled with original stained glass. The interior is now in an excellent state of repair, and free from all encumbrance. There are a few monuments, but the general aspect is bare and cold. Externally the building is much dilapidated, altered, modernised, and deprived of all character. The west end is terminated by a classical Corinthian portico, bringing to mind the more celebrated one constructed by Inigo Jones, at the west end of St. Paul's. The architecture of Geneva generally, within the walls, presents little worthy of notice. Outside the walls, new streets have been laid out, and quays formed, on land partly gained from the lake.

On the right bank of the Rhone a new suburb has arisen, called the Quartier des Bergnes, containing some very magnificent hotels and other buildings erected by private enterprise. The new Post-office erected a few years since is in the Byzantine style, or what passes for such. There is a new English church, a modest structure in the Gothic style, but possessing no particular features. The most noticeable building is a new Roman Catholic church, or cathedral, now in the course of erection, in the Gothic style, with nave, aisles, and transepts, choir with polygonal apse, of large size and good design. The ceilings will be groined in stone.

We will now glance at the town and cathedral of Berne. Berne is very generally compared to the city of Chester, principally on account of its arcaded streets. There is undoubtedly a certain degree of resemblance arising from the venerable aspect of both cities, as well as from the correspondence of the covered ways common to both. There are also many

* 24 feet higher than the great pyramid.

points of difference. The "rows" in Chester are raised a story above the streets, or rather the streets are excavated below the natural level of the surface; and the superstructure is supported by beams and wooden posts. In Berne the arcades are on a level with the streets, and the houses are carried by stone arches. The architecture, indeed, is of a very substantial character, and much of it picturesque. Arcades in the streets of towns were not uncommon, particularly in those constructed in the 14th century. They are met with at Alby, in Languedoc; Dol, in Brittany; Montpazier, in Aquitaine; Payerne and Estavayer, in Switzerland. The picturesque appearance of the streets of Berne is greatly aided by the numerous fountains, of quaint devices, in which the bear in all attitudes plays an important part: and by the lofty ancient watch-towers connected with the old fortifications.

The commanding situation of the town, and the magnificent view it affords of the great Alpine chain, add much to its interest and beauty.

The cathedral is a singular building, deriving its principal interest from the illustrations it gives of the latest period of Continental Gothic. Little of it is earlier than the middle of the 15th century, and some of the work must be brought down nearly, if not quite, to the time of the Reformation. It is all in good repair, and well kept. The building consists of a western tower, with chapel at each side, nave in five bays, with side aisles. The choir is a prolongation of the nave, separated by a screen, and without transepts; the aisles are continued on for two bays of the choir, which is carried some distance further without aisles, and terminated by a semi-octagonal apse. The style internally is poor and meagre. The piers are splayed, and sunk with a shaft running up the front. The pier arches are pointed segmental. The clerestory windows have fantastic flowing tracery, with panelling running down to the pier arches without a triforium. The vaulting is complicated in pattern, but poor, with shields and armorial bearings at the intersections. The filling in of the vaults is plastered, and painted with scrolls and borders in a grey colour. Side chapels are projected out between the buttresses, and groined.

By an inscription, in old German, on one of the stones of the vault of the north-west chapel, this portion appears to have been completed in the year 1476. The choir is separated from the nave by a stone screen, in front of which is an arcade, with Classical Ionic columns, and entablature and sculptured frieze. The groined vaulting under this arcade is precisely the same in character with that of the rest of the church.

Externally there is a fine late porch at the west end, with a double doorway, the tympanum filled in with a sculpture of the Last Judgment. A figure of Justice, flanked by angels, occupies the centre pier. The receding orders on each side are occupied by statues of the five wise and five foolish Virgins. The arches are filled in with angels and figures, under canopies, with inscriptions. The whole is exceedingly rich and well executed, though the details of the architectural mouldings are poor. The usual crossing and interpenetration of the mouldings peculiar to the Flamboyant is strongly marked. Two side portals are completed in the same style, but plainer. The upper part of the tower is very inferior to the portals just described, and is probably of the 16th century. The eastern end of the building displays the purest Mediæval character. There is a great complication of finials, pinnacles, galleries, and parapets about the upright and flying buttresses, each having five, which gives a certain richness to the appearance as a whole.

There is considerable ingenuity displayed in varying the designs of the open-work battlements round the clereatory and aisle roofs, no two bays of which are alike. Some of them have quite a Renaissance character. As studies for forms of tracery, they are worth notice. On the whole, the building may be pronounced more curious than beautiful, but remarkably interesting as an archæological study.

There are several other buildings in Berne worthy of notice. The Kunst Palast, or Museum of Art, is a new building not yet completed. It is a large stone structure, with a centre, receding flanks, and wings boldly advanced. It is four stories in height, without a single Classical column, yet the effect produced is remarkably fine. The tone and character are given to the building by rustication,—arches with deeply-recessed mouldings to the windows,—an arcaded centre to the ground-floor, and an arcaded gallery above the centre on the fourth story. Diapered strings and corbelled cornices also contribute to the general effect. The doubling of the columns in the arcades, by placing one behind the other, affording a broad soffit for ornamentation, gives a fine feature in a building of this kind.

A few words on the Cathedral of Basel will complete our remarks. Basel, though on the very edge of France, which almost comes up to its walls, is intensely a German town. Though large and flourishing, there is not much of its architecture worthy of notice.

The Rath-Haus, of late Gothic, has some curious old paintings; and some extremely singular balustrade tracery, with three sets of patterns one over the other, interpenetrating in a very curious manner.

The cathedral will well repay careful, and even minute examination, by the architect and archæologist. The varieties of style, and the intermixture of work of all periods, render it a little complicated at first, but a little study will soon reduce the chaos into order. The original corpus of the building is in the Transition style of the 12th century; the plan, a nave with two aisles, transepts and semi-circular apse, with the aisle carried round. Two additional aisles have been added on each side of the nave, apparently late in the 13th century. The original pier arches are pointed, the triforium arches round. The triforium is a veritable gallery, extending the width of the inner aisles. The clerestory windows are single lights, two in one bay with semi-arches. The vaulting is plain groined, with cross springers and cross ribs. The choir is raised considerably above the nave.

The windows in the apse are insertions of the 13th century, very large. The tracery of these windows is continued down to form an open screen in front of the triforium gallery, which is continued round the apse.

The ends of the transepts have rose windows, under which the triforium is carried round by a recess in the wall, and a blank arcade. The piers in the choir are of the original 12th-century work, and are composed of detached shafts, beautifully wrought with rich-sculptured capitals and bands. The interior has undergone very careful cleansing and repair,—the stone appearing in its original tint of light gray, with a faint flush of pink. The new benches and chairs display some very good designs in carving. There is also a fine modern organ of very beautiful design, and a rich stone-pulpit of 15th-century work.

Externally the original western towers have been replaced by towers and spires of the Flamboyant period, very rich in crockets, tabernacle work, and open tracery. A centre portal is of the same period, but has since been altered. The west window is an insertion of the 13th century. In the clerestories, at the sides, and in the transepts, much of the original 12th century work remains. The flying buttresses of later date are terminated with statues in niches, with canopies and pinnacles well executed. The apse has arcades running under the lower windows, with corbel table over, and a gallery with open parapet under the triforium windows. The end of the south transept has some curious original specimens of Romanesque ornament about the entrance-door.

The deep-red colour of the building is stated by the guide-books to be the natural tint of the stone; but a very slight examination suffices to make the discovery, that the whole exterior has been painted a deep Indian red colour. When this tasteless barbarism was committed, and whether it is still perpetrated from time to time, I cannot undertake to say. The roof is covered by coloured tiles disposed in patterns, which give it a bright and pleasing aspect. The cloisters attached to the church are very extensive, thickly occupied by cenotaphs, of which many have been raised to the memory of early Protestant Reformers.

I have now brought these imperfect memoranda to a close. To myself they are interesting as recalling incidents of travel, and impressing more vividly on the mind, observations, and deductions made on the spot; and, if they have the least effect in calling up recollections, or assisting in the comparison of notes by others of kindred pursuits, I shall feel that they have not been altogether penned in vain.

J. A. PICTON.

ART—ITS ORIGIN.

MAN is an artist as he is a man. The first rude aspirings after adaptation to circumstances and beauty of form were the necessary expressions of an inward principle. When man began—even in a small degree—to long for comfort, for settledness, for material ease; he became a framer of dwellings. The cavern in the rocks about him, the enclosure formed by tangled woods, the easily constructed moveable tent, had been the dwellings of his wandering life: now he felt that he must be a settler. He must for this leave all portable, travelling abodes, and form for himself a solid, well-foundationed, lasting house. The first attempt was rude and yet artistic. He brought to bear the skill that he possessed, and a habitation of some sort was erected. Thus his constructive ability, his invention, his art were exercised. His next effort was made, with all the experience which he had necessarily gained, and was an advance: his wants were better known and better supplied, and better measures taken to render the building free from the effects of the elements. He had now obtained a holding in a restrained and civilized mode of life—with its restrictions and employs. He had become well imbued with an idea of his own wants, and the best manner of their supply. He had attained two points—the settledness of building, and its adaptation to his need and comfort. Now he naturally, in the spirit of constant advance which has been ever in man, urged himself to the realisation of something further. In pursuing this, he improved on his former adaptations, made his materials of more enduring stuff, let his requirements take a wider range, and, further, he imprinted on his effort the stamp of his creative mind. He no longer formed his work with mere utilitarian art: he added to that beautiful art—equally utilitarian in its origin, only more gradual and restricted in its uses. The door had been before—it had opened and shut—it was artfully made—and was in every sense a door. Doors were still wanted—doors were made—they fulfilled their office—they were advances on the others, in that with construction were united proportion of form and well-placed embellishment. This was the advanced post—the attainment from which the inventors did not recede, but proceed.

Then buildings retained use, proportion, beauty: they were, in that sense, the works of man's art.

Art originates in invention. Man is in it a creator: he ever acts restrained by no bonds: his mind may light, unchained as it were, on the topmost turret of a temple, and cast broad glances on all that is below. He is free to think: his thought and will are his action: his action is the origination of structure. The hand, as it guides the pen, forms its characters; so that thought is there imprinted that was before unfreed. The mind holds the germ: it there casts forth its branches and is finally developed in word or in act. The mind conceives of beauty: it expresses that conception in word or in act. It conceives of proportion, of grandeur, of solidity, of meetness, and guides the hand of the workman as he chips the stone, or moulds the wood to express his purpose.

The builders, in the youth of their employ, idealized little: they had to follow the rules that such a state as theirs gave to them. Later, their need was proportion of parts and manifestation of feeling. They wanted that their buildings should be fitted for their uses—for their advantage. These uses were not merely for the body, they were for the mind and for the heart. The body wanted a dwelling, a covering, a home. The mind wanted an expression of thought, an arrangement of parts, an orderly fitting together of acquirements. The heart wanted taste, richness, fulness, beauty.

The builders knew that man has a trinity of wants and they arranged a trinity of supply. They acted wisely and well.

ART—ITS OFFICE.

Art was developed by a necessity. It satisfied a longing: its office was beneficent. It is impossible to find a man without some perception of its usefulness. Use appeals to mankind—to English feeling. Art is useful: it makes man more like what he was intended to be: it developes, in the framer, the gentler and nobler of his powers: it affects the observer in his gentler and nobler feelings. Art has to deal with the tone of his being. The void that it fills, the joys that it imparts, and the influence that it exerts, are all beneficial. Surely that which exerts an influence for good is useful—whether or not it affect the temporal or physical advantage of any.

Perfect art must have a perfect originator. Man is not perfect—consciousness tells us this—therefore he cannot form a perfect enshrinement of art. He can only approximate—he ought to do this—he ought to draw as near to perfectness as he is able.

The Almighty One, who made all things by His will, was necessarily perfect—His work was perfect too—He pronounced it very good. He is perfect now; therefore the maintenance of the planets in their courses, and of this our world in its well-being, is perfect. There is no change in our seasons: year after year, spring, summer, autumn, winter follow on unceasingly: the mountains are still as once; the valleys also: the trees still spread themselves upward: the shrubs still flourish in their seasons: the minutest operations in nature are still kept on—on always—on for ever. If we wish for a perfect concentration of use, proportion and harmony, and beauty; we have only to regard some fertile valley—closed in from barren country—the refuge of man, his habitation, his home, the producer of his blessings, the giver of his joys. Art is there in all its supreme excellence: rocks, hills, valleys, all teach us lessons—lessons that the artist, the framer, should learn well and use well.

We have, in this day, as an universal rule, art in a very low stage: the streets of our large towns, the house in country fields, all tell us that use alone is studied;—use too in its lowest being. The covering is framed for the house: it is proof against the weather:

WORTHING WATER-TOWER AND ENGINE-HOUSE.—Mr. Rawlinson, Engineer.

is convenient for the body: it consults nothing more. This should not be so.

The individual energy of man was great in time past: the individual energy must be powerful now. Vigour should be with us; then the workman would feel his work—as well as the architect. Instead of one originating mind, there would be only the control of Government to produce a successful whole. Each workman would labour at the work he loved—would love on—and work in love. The workman would not be an implement, a tool, an instrument—he would be an agent, a worker, such as he should be.

Art, in its highest state, indicates a very advanced state of refinement—intellectual and moral—in a people. It is the exponent of the energy, the skill, the taste of a nation. It belongs to no form or race of forms. It does not rest in horizontality or verticality of construction. Every form shows forth a certain development—less or more advanced.

The profit of man, his elevation, his joy are the purposes and aims of true art. The artist should therefore labour for this. S. F. C.

WORTHING WATER-TOWER AND ENGINE-HOUSE.

The water-tower at Worthing, of which we give a view, constructed under the direction of Mr. Rawlinson, C.E. is 40 feet square on plan, with a central pier of brick, and spiral stairs of cast-iron. The foundation is of concrete; the main structure of bricks, made on the ground: white and red brick from other places have been used in the piers and arches: where stone is used it is Bramley Fall, Caen, or York. The water-tank is of cast-iron, 40 feet square, and 13 feet deep, and will contain about 110,000 gallons of water. It has been made and put up by the Messrs. Cliff, of Bradford. The strongest plates are ½-inch, and the thinnest ⅜-inch thick. The staircase is carried through the centre of the tank, and tie-rods radiate from the stairs' well to the sides.

The engine is high-pressure, by Messrs. Headly and Manning, of Cambridge, and pumps sewage as also pure water. The sewage-pumps are at a little distance outside the engine-house. The pure-water well is inside the house, at the foot of the tower, and is sunk in chalk. The bottom of the tank is about 70 feet above the ground, and the tower and roof are about 110 feet in height in the whole. Tank and water, when the tank is full, are upwards of 500 tons in weight. The whole tower is upwards of 4,000 tons on the foundation. There is not the slightest crack or settlement about the work, and the tank is quite water-tight. The engine commenced work at the end of last year. The public sewers will be completed in about a month's time. At present, upwards of 400 houses have been drained, and have had the new water laid on. The men are proceeding with the private works as rapidly as possible. Before summer, the whole of the houses and streets on the sea front will be sewered, drained, and have new water; and the shore will be perfectly freed from sewage. Messrs. Frend and Hamill are completing the public sewers. Mr. Charles Hide, architect, has superintended the whole of the works, and is now completing the house drainage.

METROPOLITAN IMPROVEMENTS AND THAMES EMBANKMENT.*

The subject on which I have undertaken to read a paper this evening is, even in its most limited sense, sufficient to chill one's enthusiasm and appall the most courageous improver; but, taken comprehensively, the difficulty is immensely increased. It is hard to resolve where to begin and what to reject, so as to touch the most important points, and bring them all within the compass of an hour's address. To treat shortly and intelligently a subject which embraces whatever relates to health, comfort, convenience, and general well-being of two millions and a-half of people, involves no trifling responsibility. Nothing calculated to improve their condition ought to be excluded. Ventilation, drainage, sewage, public parks, baths, wash-houses, and all other sanitary regulations, whether superintended by corporations, Royal commissions, boards of works, parish vestries, or local boards, are necessarily included under the general idea of metropolitan improvements.

From such a catalogue of matters demanding our

* Read by Mr. Francis Bennoch, at the Society of Arts, Wednesday, April 29th.

attention, we ought not to consider as unworthy of our notice, water companies, gas companies, paving principles, or street cleansing; but as each subject enumerated possesses in itself material sufficient for a single paper, I shall content myself with cursorily touching them as I pass, and now proceed to the more immediate duty I have to perform, my purpose being to confine my remarks to such improvements in our public thoroughfares as will give increased facilities for the traffic of the metropolis.

Before proceeding to consider our streets as they now absolutely exist, we will rapidly survey the past, so as to enable us more justly to appreciate the present, and partially excuse the difficulties that beset us. No people have ever been sufficiently far-seeing as to anticipate accurately the wants of the future. Streets amply commodious a hundred years ago are altogether insufficient for the necessities of to-day. So short-sighted are persons in power, that before the completion of their approved designs they are frequently obliged to confess their blunder, and regret the mistake they have committed. The New London-bridge was widened considerably after the first design was settled and accepted, and had it been increased by 20 feet additional, the public advantage would have been better consulted. An idea prevailed in the City that 50 feet was ample for any first-rate street. Moorgate-street and New Canon-street were laid down and built under that idea by the then chairman of the Improvement Committee, in opposition to the better judgment of their eminent architect. The result is that entering Moorgate-street from the wider street beyond, is like entering a well. Prejudice ruled, and reason was left in abeyance. No first-class leading thoroughfare ought to be constructed on a scale of less than 60 feet between the houses, from front to front. Nine feet for the foot pavement on each side, and 42 feet for the roadway. This would enable two persons to walk abreast, and allow one person to pass in each direction on each side of the street, 42 feet for the carriage way gives room for five or six conveyances. One to stand, when necessary, by the kerb on each side; one line of slow waggons and another of swift cabs to proceed in either direction. This establishes a principle that should ever be maintained. A less width is productive of many interruptions, a greater width in a street of business or general traffic might lead to confusion, but could not improve the convenience, while to cross on foot would be attended with considerable difficulty, if not absolute danger.

That the thoroughfares of London should continue as they are, is discreditable to us as an enterprising people, but by no means surprising. There is not on the face of the globe a finer situation for the metropolis of the trade, the commerce, the wealth, and the luxury of the civilised world; and those who chose it displayed good sense and judgment. Never dreaming of the marvellous future, they only consulted their then necessities. A seafaring people, their highways were the rivers. Liable to attack from hostile tribes, their security was promoted by adopting a locality combining in itself the greatest number of natural advantages. The first being contiguity to the ocean, and yet sufficiently remote as to render any sudden attack unlikely by day, and utterly impracticable under the shadow of night; the serpentine course of the Thames rendering navigation in the dark utterly hopeless. The second advantage was its excellent situation for agricultural and grazing purposes. The natural soil being composed of gravel and loamy clay, rendered very productive by the application of the refuse matter of large towns; the surface of the ground beautifully undulating, with a great variety of gentle hills and pleasant dells; the air temperate but moist, and innumerable springs supplying an abundance of the purest water, made and makes London by nature one of the healthiest situations that could have been selected. Ascending the river, the site chosen was the first really appropriate. Though easy of approach, the banks were, nevertheless, sufficiently elevated to form a natural barrier against the encroachment of the tides. The model in the middle of the room, kindly lent by Mr. Wyld, will give you, at a glance, the best idea of the undulating character of the ground on which London is built.

It requires no effort of the imagination to stretch back a couple of thousand years and witness the painted natives building their tiny huts by the side of their pleasant river. Coming down the stream of time we observe them gradually change. The straggling structures increase in number, and by-and-by unite to form a picturesque but irregular row of inconvenient cabins; population increased, but the banks of the river were inflexible and could not be extended, nor would it have been consistent with the habits of the times for the inhabitants to be scattered and dwelling far apart. They clustered together for mutual protection, and, therefore, another straggling row in the rear of the first appeared, and formed the first street. Another and another followed, until the sides of the gentle slopes were covered with the huts of the early settlers. The space between the houses would necessarily be only such as to permit the inhabitants to pass and repass with their burdens on their heads or shoulders. When pack-horses superseded human labour in the heavier work, the streets were, no doubt, found too narrow; and, true to their nature, it is to be expected that some excited and sturdy Briton denounced the then Chief Commissioner of Works for neglect of duty. A collection of such speeches would, even now-a-days, be of rare value, when no man seems to have capacity or power enough to grasp and conquer the giant evil. The streets, then as now, followed the course of the river, narrow, winding, and inconvenient. In England, Scotland, Ireland, on the continent, and even in the United States, this law holds good. The river forms the base and determines the direction of the streets.

Turnpike roads, canals, and railways, those triumphs of the genius of Macadam, Brindley, and Stephenson, in facilitating the intercourse of man with man, have considerably modified the laws previously existing, and streets, straight as a line, and of admirable width, instead of being the exception, are becoming the rule. The founders of the city of Philadelphia were the first to abandon the picturesque, and determine that utility was the only rational principle that a reasonable people should adopt. But Nature seems to rebel against any and every system that would attempt to fashion it into anything like perfect uniformity. The streets of Philadelphia are in their arrangements as regular and formal as the squares on a chessboard, and can, from end to end, be flushed with the crystal water of the Schuylkill every hour in the day. In seeking for improvement and perfect utility they have failed to secure uninterrupted privacy; so exactly alike are all the streets in the square, the same marble cornices, the same silver-plated handles and knockers on the doors or bell-pull knobs, the same tell-tales at either side the window, the same number of marble steps leading to the door, and the same railing around the area, that even the oldest inhabitant is liable to invade his neighbour's house. The doors are the same without, and the passages are the same within, that a person may take off his over-coat, hang up his hat, and never discover his mistake till startled by a goddess with a shrill voice demanding what the stranger wants in her premises.

The growth of London was like the growth of the English oak—slow but sure—as if destined to live for ever; and like the oak, too, the first sign of decay was found near the centre.

The earliest reliable map, of which there is one on the wall, gives us an idea of the metropolis 200 years ago. The old City of London, with its cathedral in the centre, seems to be a mere handful of houses when contrasted with the endless labyrinth of ways that now constitute the great metropolis. Beyond the City boundary, and outside its liberties, we had the Moorfields, Spa-fields, Conduit-fields, and the fields of Lincoln's-inn. Within a comparatively recent period, the borough of Southwark was resorted to as a place of amusement and healthy exercise for the younger men, with an occasional mansion occupied by the wealthier merchants; the custom then being for the general citizens, whatever their grade, to reside at their place of business.

Still the City grew; and grew with it all the inconveniences that marked the formation of its first street. Narrow, undrained, no free circulation of air, closely pent-up houses, overhanging the streets and shutting out the light. The congregation of houses and closely packed inhabitants became a nuisance, reeking with every imaginable abomination. Its filthiness brought its own punishment: plague and pestilence came with avenging swords, and periodically slew thousands of the people. By fasts, prostrations, and prayers, they hoped to appease offended Deity, and overcome the physical laws established by their Creator; but still the epidemic came, and all the sufferings that afflict dirty humanity could not, and would not be banished, because they neglected simple cleanliness, so near akin to godliness. At last, as a boon, and as a blessing, came the Great Fire of 1666; conferring on the citizens of London opportunities and advantages similar in kind, if not in degree, to those which the late famine conferred on Ireland; rendering possible for the first time in its history the introduction of a wiser system. What appeared to be a dire calamity proved to be a heavenly visitation, the commencement of a new era, the dawn of a brighter day.

Then, as now, the authorities were unequal to their position, and did not appreciate the lofty conceptions of their men of genius. Wren might unleash his imagination, and give his genius scope. Delighted with his conception, he might revel in glorious visions of his new and regenerate city rising from the cooling embers of the old, eclipsing in its grandeur and its beauty every city on the earth. But it was not to be. Red tape existed then as now, and the philosophical architect was thwarted in every possible way by the envious hand of the then illustrious Barnacles. The plan suggested by Wren for the rebuilding of the City was, of course, rejected by the authorities, and the old City was reproduced with all its evils restored or aggravated. It is humiliating to observe, that the wiser the alterations, and the greater the improvements now recommended, the nearer they approach the design of the great Christopher, to whose memory be every honour paid. The precise features of the plan suggested by Sir Christopher Wren being imperfectly known, I have caused one on a large scale to be laid down, so that you may thoroughly understand it without difficulty. That plan is now before you.

So soon as a city bursts the bonds of its commercial requirements or trading necessities, and its merchants have realised property sufficient to be independent of trade, a new condition of things appears, different streets are introduced, regulated by laws as invariable as those that existed when the first street was formed. The primary object in constructing the original houses was convenience for the purposes of gain; the second series of houses springs from the fact of accumulated wealth, and designs are produced on a scale of corresponding magnificence; the object being to gratify the senses by the indulgence of every luxury.

The first streets, as we have seen, are regulated by the course of the river; the second take an independent course. In almost every city the eastern district is devoted to labour, the western district to recreation and its attendant pleasures. The cause of the difference, so far as London is concerned, is perfectly clear. Begin where we will, the first house becomes the centre of the system, and as the houses increase they form a village, town, or city, there must be to each an eastern and a western side. The earliest founded becomes the centre of trade producing abundant wealth. With independence arises the desire to enjoy the fruits of industry. The north may be too chill, the south too warm, the east full of bustle and vapour, but the west is during nine months in the year freer from the annoying smoke which the prevailing wind kindly drifts towards the east. To the west, therefore, the man of pleasure retires, and there establishes himself. In the course of a few years he becomes the centre of a circle whose sole object in life seems to be the pursuit of enjoyment, often frivolous, and not unfrequently sinful. Though dwelling in the uncrowded west, they are, nevertheless, compelled occasionally, generally quarterly, to demean themselves by visiting the precincts of trade, and so a free thoroughfare is established east and west. Whatever course the streets of trade may take, the streets of pleasure are generally east and west. This is the case, not only in London, but in Brighton, Birmingham, Manchester, Leeds, Huddersfield, Glasgow, Edinburgh, and Dublin; the whole being determined by the current of the wind. Mr. Glaisher, of the Royal Observatory, Greenwich, and one of our council, has furnished me with several very elaborate tables bearing upon this point, which, I regret to say, I have been unable to use as fully as I at first intended. This, however, may prove to be an advantage to the society, for I would suggest to our friend the propriety of his preparing a paper for next session, to be entitled, "Which way does the Wind blow?" I am convinced that such a paper, founded on his almost innumerable but accurate observations with the several principles, legitimately deducible from them, could not fail to be highly interesting as well as instructive. I hope he will take the hint.

In the late autumn, the winter, and the early spring, easterly winds prevail, and the western suburbs receive the smoke drifts from the east; but, at that period, the wealthy are out of town, indulging in country sports, Parliament is adjourned, while those who cannot afford the country establishment, barricade their front windows and retire to the rear, occupying the dingy chambers overlooking the stable-yard of the adjoining mews, and by a strong effort of the imagination dream they are in the midst of a lively landscape. The whims and caprices of fashion are not to be understood by any process of reason, any more than we can reconcile with the demands of common sense, the custom that makes the period for social intercourse and friendly association, the time that should be devoted to repose, seeking their couches about the time they ought to rise—

> "When night's dark curtain's drawn aside
> By morning's rosy fingers."

Another reason for the streets taking naturally an easterly and westerly direction may, I think, be found in the fact that they are by necessity better ventilated; not only does the westerly wind cool and sweeten them with its refreshing breezes, but during the largest portion of the year, the rising and the setting sun illuminates and enlivens them twice every day, while the streets running north and south receive the advantage only once during the twenty-four hours.

This is a matter somewhat theoretical, but, I think, it is well worthy the consideration and careful investigation of the sanitary student, with the view of ascertaining whether the direction of the streets bore any—and if any, what—influence on the general health of the population.

Having thus glanced at the formation of our business streets and thoroughfares leading to districts dedicated to pleasure, we must turn our attention to the examination of the difficulties to be overcome before our main trunks of communication can be considered perfect, or moderately convenient.

How to employ the industrious poor; how to get rid of the criminal population, are, and ever have been, exciting subjects for discussion. Reformatory societies, prison discipline, labour regulating, crime repressing and fraud preventing, schemes, with suggestions numberless, are spoken from the pulpit, thundered from the platform, and echoed by the press, until the very air gets thick with thoughts of something to be done. Physical discomfort and its consequent moral degradations have attracted the attention of our Shaftesburys, our Lockes, our Rogers, and our Lethebys, and Parliament will, ere long, be forced to devise some true method of removing or abating those discreditable scenes so frequently disclosed. London is now an epitome of the universe, and contains within its borders not only all that is purest, best, most refined and holiest, but also all that is vilest, basest, wickedest, and barbarous. The several districts are divided from each other, and as accurately defined by the habits of the people, as are the several countries of the earth on a map by Wyld or Arrowsmith, Belgravia, Tyburnia, Bethnalia, and the recently discovered Rogerian district of Costermongeria, are all peopled by tribes as different in their habits and modes of life, as are the Esquimaux and the loungers on a Parisian boulevard. It is no part of my intention to dive into the recesses of these several regions, and bring into light either the gems and jewels of the one, or the loathsome filth and reeking crime of the other; I leave that for abler hands. My work is to endeavour to bring these several portions of the metropolis more closely together, by suggesting certain improvements, which if adopted, would render a journey from the west to the east of London possible in less than half a day.

The difficulties of the north-west passages, the nearest route to India, the mountains of the moon, have all been measured and resolved. How to bring our Australian cousins into closer relationship, standing as we do towards each other, heel to heel with only a globe of earth between, has had due attention from the public and the Legislature; but how to bring the several parts of disjointed London into closer contact by increasing its number of bridges, widening its streets, embanking its river, or extending and rendering continuous a metropolitan belt of railways, has never to this hour received the steady and determined attention of the authorities. A spasmodic movement is occasionally made, but with little effect. Instead of a new bridge, they construct a crutch to support the broken back of the old one. They commence a street and leave a wilderness; they attempt a sewer and produce a cesspool. We devote thousands to the evangelization of the barbarous South Sea Islanders, and leave our unfortunate brethren in an adjoining street comparatively uncared for, wallowing in hotbeds of crime, suffering, disease, and death. The brightest intellects of the country and ablest engineers of the land, are devising means by which all parts of the civilized globe shall be placed in immediate contact. The harnessed lightning, obedient to our will, is delivering every moment, at every central seat of commerce, the course of Exchange on Paris, or the price of Consols in Capel-court; but how to shorten the overland route from Charing-cross to Whitechapel, is left to a few enthusiastic private persons, who are, I fear, looked upon as lunatics, the matter seemingly being abandoned as hopeless, while the evil is increasing day by day.*

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

ROME.

AT a meeting of the institute held on Monday, the 20th, Mr. Godwin, fellow, in the chair, it was announced that the temporary indisposition of the president, the Earl de Grey, would prevent the presentation of the medals on that evening, as intended. Numerous interesting donations were presented, including a photographic view of the scaffolding for the erection of the column in Rome, commemorating the establishment of the dogma of the Immaculate Conception.

With reference to the photograph, Professor Donaldson condemned the obsolete style of scaffolding adopted in Rome; and the Chairman urged the more extended use of photography by architects in obtaining reports of the progress of their buildings.

A letter from Sir Charles Barry was read, inclosing a copy of his protest against the decision of the Government in respect of his remuneration.

The Chairman said that Sir Charles Barry was richly entitled to the best thanks of the Institute, and of the profession at large, for the good fight he had fought, not simply for his own personal advantage, but on behalf of the architectural profession. Government had admitted in the great competition now going on the principle of 5 per cent., and although in that they had not done all that was needed, still in what they had done they had shown the injustice—he was compelled to say—with which they had treated Sir Charles Barry.

Mr. Ashpitel then read a continuation of his paper on the Roman Forum, but confined himself in it more particularly to the buildings on the Capitoline Hill. The following is a portion of his argument:—*

"We now come to the consideration of the Capitol itself—a subject which has lately awakened unusual interest. In addition to what had already been written, a very able critique has just appeared in a late number of the Quarterly, upon Mr. Dyer's opinions on the subject of the Capitol, contained in his excellent article on Rome in Dr. Smith's Dictionary of Classic Geography. The writer takes the side of Messrs. Becker and Bunsen against Mr. Dyer, who adopts the views of Canina and Dr. Braun.

The nature of the Mount, a sort of saddle-back with an intermediate hollow, has been before described, and it seems clear from the account of Varro, that the entire hill was as much designated 'Capitolinus,' as the other hills 'Palatinus' and 'Aventinus.' But from the circumstance of there being two summits, a sort of subdivision seems to have been adopted, and however terms may have been interchanged, one summit seems especially to have been called 'the Arx,' and the other 'the Capitol,' the hollow ground between being designated the Intermontium. The great question now is, which was 'the Arx,' and which 'the Capitol.' Mr. Dyer and Canina place the Capitol on the northern summit and the Arx on the southern.—The reviewer, following Bunsen and Becker, reverses this order. Two things are agreed on by all, viz:—that the Temple of Jupiter Maximus stood on the Capitolium—and that of Juno Moneta, the Roman Mint, on the Arx, the spot where formerly was the home of Manlius. That the whole hill was called the Capitol, is clear from the fact, that it is always so named in the enumeration of the seven hills, just as the whole hill was formerly called the Tarpeian, and before that the Saturnian Mount. It took its name from the head of a man named Tolus (Caput Toli), being found fresh and bleeding under ground, while excavations were being made for the foundation (Jul. Obseq. 5). This event was considered such a prodigy as to justify the change of name. Now this was two centuries before the time of Romulus, and yet Livy (i. 10), describing his offering the Spolia Opima to Jupiter Feretrius, says, he ascended the Capitol, by which word, of course, the whole hill must be meant. When, however, classic authors speak of the hill alone without relation to the other hills, the Arx and the Capitol are mentioned separately; thus Livy, describing the surprise of the place by Herdonius, of which we shall treat presently, says: 'The news went to Tusculum that the Arx was taken and the Capitol seized upon;' in another place, 'The Arx and the Capitol were in great danger;' in another, 'The Arx and Capitol, the dwelling-place of the Gods;' and numerous similar examples might be quoted. But there is even something more; the whole hill was sometimes called the Arx. Thus, Servius in his Commentary on the Æneid, viii. 652, says: 'Thus on the other part of the shield was modelled the Capitol because this is manifestly the Arx of the City.' Mr. Dyer also cites a passage from Cicero (Vir. ii. 6), to the same effect.

Perhaps an example might be found among our own writers, when speaking of the Tower of London. It is often said such a one was sent to the Tower, tried and beheaded there, when, in fact, the execution took place out of the Tower, upon the Tower-hill; and sometimes people are said to have been executed on Tower-hill, when, in fact, they underwent their sentence on the rising ground called Tower-green, in front of the chapel and inside the Tower walls. To doubt an English historian's accuracy because he might confound one spot with the other, would be too severe—and yet these are distinct spots, with a broad moat between them. Thus, with respect to the Capitoline Mount, one summit should be called the Capitol, the other the Arx, the Intermontium between them; can we now define the right names for each division? Becker tries to settle the matter at once, by quoting from Livy, xxxv. 21, 'A large stone, whether from the rains, or from a slight earthquake, having slipped, fell from the Capitol into the Vicus Jugarius, and killed several people.' Now we know this street began near the Temple of Ops, and passed close under the southern hill, but it has been shown that the whole hill was called Capitolium, times without number, and therefore the passing expression proves nothing. He then quotes a passage from Suetonius, who, in relating the mad pranks of Caligula, says he built a bridge from the Palatine to the Capitol. If the Capitol had been on the northern summit, this bridge must have crossed the Forum at an angle, a thing highly improbable. But the fact is, we find on referring to the author, that the half-crazed, half-savage wretch, was seized with the desire of being adored by the people, and that he sometimes sat between the statues of Castor and Pollux in their temple, inviting public worship, and at last pretended to receive frequent visits from Jupiter Capitolinus. 'He then,' says the author, 'throwing across a bridge (ponte transmisso) over the Temple of Augustus, joined together the Palatine and the Capitol.' There is not a word of the Arx, nor of *building* a bridge. Not a word about the bridge in any other author, though such an erection, a hundred feet high and a quarter of a mile long, must have been something to talk of. A bridge is said to be 'transmissus,' literally 'sent across,' not over an open space, but over the Temple of Augustus! Now, a little further, we read that another of his pranks was to scatter money from the roof of the Basilica Julia among the people; what then can be more easy and probable, than to suppose he had a light bridge, possibly moveable, thrown across from roof to roof of the temples, which would at last land him in the Tabularium, whence he could ascend to the Arx or to the Capitol as he pleased? It is evident he was in the habit of passing over the various roofs—and if so, what need had he of such a stupendous, such a gigantic bridge, of which no remains exist, and of which no author makes mention?

There is another story, of which Becker makes a great deal, and which requires a little more consideration. It is the account of the sudden surprise of the Capitol by Appius Herdonius, a Sabine by nation. The account is partly given by Livy, and at greater length by Dionysius of Halicarnassus (10—14). The facts occurred a little before the time of the famous story of Virginia. Herdonius seems to have been a sort of adventurer, who had

> 'Shark'd up a list of landless resolutes,
> For food and diet, to some enterprise
> That hath a stomach to it,'

in fact, he had collected as many exiles and slaves as made together a body of about 4,000 persons. In justice to all parties let us take the account given us by Dionysius. He states, that Herdonius got his men together in some light boats, that 'they crossed the Tiber at that part of Rome where the Capitol stands, which is scarcely a stadium (a little over 200 yards) from the river; then, it being the middle of the night, and all the city being deep in sleep, they went up at their will through the unlocked gates, for thus do the sacred gates of the Capitol remain through an oracle (they call them the Carmental gates); then, sending up their power, they seized the φρουριον, or guard, then making an attack on the Arx (Ακρας), they made themselves masters of it.' Now, Becker reads the passage to mean that Herdonius came to the Carmental gates, not of the Capitol, but of the city itself; that he slipped through them, and then scaled the rock and entered the Arx, and thence the Capitol. But these difficulties directly suggest themselves: is it to be reasonably supposed that a city would be carefully fortified with walls and gates, and yet the principal gate be always left open to the attack of an enemy? It can easily be understood why an inner gate should always be left open according to an oracle, especially when leading to a holy place like the Capitol; but an outer gate always open would be as useless as no gates or walls at all. But Dionysius does not say it was an outer gate; he says it was the gate of the Capitol, called the Carmental gate, and this it might well be. It was close to the Altar of Carmentis, and it has been shown that its name had varied; it was sometimes called the Saturnian gate, sometimes the Porta Pandana. In fact, there is a strong presumption that it never meant the Carmental gate of the city, and that Herdonius brought his men by water. Now, if he passed the gate of the city by the river, landed his men in the city (which we can easily conceive), and then rushed upon the open gates of the Capitol, seized on the guard, and made himself master of the Arx and the Capitol, the whole affair is intelligible, and intelligible according to the notions of Canina. In fact, I must say, these arguments of Becker's seem to prove nothing; and besides, it is difficult to comprehend the account according to his views, and easy to understand it according to the ideas of Canina and Mr. Dyer."

Professor Donaldson objected to some of the views

* To be continued.

* We may take the opportunity to say that our own series of papers on Rome were determined on and commenced before the introduction of the subject at the Institute. A continuation of these will appear in our next.

entertained by Mr. Ashpitel, and described at considerable length the buildings in the Forum.

Mr. Ashpitel having replied, Mr. William Haywood, of Guildhall, was elected a fellow, and the meeting separated.

DRAWING IN PAROCHIAL SCHOOLS.

WHEN the Department of Science and Art commenced the system at present in operation for teaching drawing in parochial schools, it was a much-vexed question whether the time which was proposed to devote to it (namely, one lesson per week of one or two hours in each school) would be sufficient to give ordinary children such an amount of instruction as would be of any value, considering the short period of their continuance in the schools.

Opinions on the subject, which the Department obtained from a large number of those engaged in teaching drawing, were of the most conflicting kind; and although many prophesied that no practical good could result from a few lessons in drawing spread over a long period, some were of opinion that they would sow the seeds of art, and probably lead to other and more complete means of obtaining an art education.

Now that the scheme has been fairly tried, it may not be out of place to make some remarks on the subject.

The method by which the proposed instruction in parochial schools was to be carried out in London, was by making the teaching of them part of the education of advanced students in the head school at Marlborough House, who were undergoing a course of training both in art and art instruction, previous to their appointment in country schools of art as masters.

These students had, as a part of their education, to give one or two lessons per week in the parochial schools; but, as a rule, each student gave one lesson per week, of one hour, in some national or other school to which he was appointed.

The average number of children instructed by each master, during the hour's lesson, was about seventy; and as the lesson was of so short a duration, it became necessary to adopt some system by which each child might receive the full benefit of the lesson; and this, considering the number of children instructed, was somewhat difficult, inasmuch as drawing may be said to be an art to acquire which requires careful and individual supervision. As the expense of material for so large a number of children was also an important question, as the majority of pupils were of the poor class, some kind of inexpensive material had to be thought of. These difficulties were surmounted by the adoption of the *black board* as a means of giving the lesson; the pupils drawing on slates the object which was drawn by the master on the board. Then, as in the majority of cases the children were very young, it was evident that some simple explanation should accompany the lesson, and a plan of instruction be resorted to, by which even the youngest child might understand how to draw the object given.

To obviate this difficulty a comparatively new system of teaching was adopted, and one which, judiciously practised, was calculated to be perfectly successful. This was the principle of giving constructional lines as a means of drawing the actual lines of the object, all bearing a certain proportion to the first line which was drawn. Thus, in a figure in which the *cyma recta* occurred, a straight line would be drawn as the central line; the position of the curve indicated by another straight line, which would be divided into two equal parts, and upon this the curve be drawn.

The same thing would be repeated on the opposite side, provided the object were symmetrical. As a rule, symmetrical objects, such as vases, simple pieces of ornament, and such-like subjects, were selected; so that a central line might be drawn, and the proportions of the figure to be drawn having been already fixed by the master, the central line was divided into a certain number of parts, upon some of which the principal parts of the figure lay. The balance of the object would be obtained by passing lines at right-angles to the central one, and marking off equal distances on each side of it, themselves bearing some proportion to the central line.

Suppose, for instance, a vertical line, A B, be drawn, and divided into two equal parts; the same length of line be drawn at the extremity A, half on each side A B, and the ends of this horizontal line be joined to the extremity of A B at B, by straight lines; the two latter be bisected, and upon them two *cyma recta* curves be drawn, forming a lotus-like figure, which is completed by drawing, from the extremities of the horizontal line, curves which tend inwards, and unite in the bisection of the central line. Other small features would be added without constructional lines, in order to exercise the eyes of the pupils to see the proportion they bear to the rest of the figure, and prevent the constructional lines from becoming a mere crutch. Such an example as this would be given for its simplicity, and might, perhaps, form the first exercise in the drawing of curves. The master would draw it on the black board, step by step, and, as he drew it, make such remarks on the peculiar features of the figure as would best enable his pupils to understand it; whilst they themselves would copy each line as the figure progressed until the completion of the object.

Besides his observations on the object drawn, he would give general cautions to beware of falling into certain errors which his previous experience told him they would be liable to as beginners; and afterwards he would go round to each child, and correct his drawing, pointing out individual errors.

The advantages to be derived from such a system of tuition were various. It combined both class and individual instruction (the latter being perfectly necessary), and as only a very short time was devoted to drawing, it was thus economized and made the most of. It made use of such materials for teaching as were already in the school-room and were very inexpensive, and the manner of giving the lesson was such, that the simplest child could understand it perfectly. Perhaps few subjects previously out of the range of school education could have been so favourably accommodated and so easily blended with the already existing system of education.

When the pupils had acquired a certain power in drawing straight lines and simple curves on their slates, paper was given them, and the same exercise which those who improved but slowly continued to draw on the slates, those who showed more taste and improvement were allowed to draw on paper. This class was a step to the simpler examples of Dyce's drawing-book, and as a pupil's eye became better educated to see proportion, and his lines showed greater refinement and firmness, he was advanced to the highest class in parochial schools, viz. that of shading from solid models.

I have hitherto spoken of this system in the past tense, because it was in such a manner that the experiment commenced, but in the majority of instances it is on such principles that the parochial schools are now taught.

Whether, as a rule, the system be *thoroughly* successful, is a question which can only be answered after careful and long investigation, and it is not my intention at present to enter into that part of the subject. I will, however, give the result in one instance of such tuition in drawing as I have described.

In the *Builder* of April 18th you noticed the public examinations in drawing which have lately taken place in the London District Schools of Art, both of the students and whoever else wished to apply for examination. At the Rotherhithe school, the number of exercises worked was forty-one; the number of prizes given was six. Having myself had the care of the Rotherhithe parochial drawing-class during the past year and up to the present time, when the examination was announced I was anxious to test the system of black-board teaching, upon which I have worked the school, and I therefore sent some children for examination in freehand drawing from copies, which formed one of the subjects for examination. Upon inquiry concerning the six successful candidates, I found that three were little boys from my class at the parochial school, a fourth was a boy who had attended both my class and that at the district school, whilst the remaining two were boys from Queen Elizabeth's School, Southwark, in which I am the drawing-master, and have taught the classes in it solely on the black-board system of tuition. Now in the case of five of these boys the average amount of instruction which each has received has been one lesson of two hours per week during the past nine months, and this period includes the vacations and absences occurring in the time. The exercise given at the examination was one of Dyce's examples, two conventional anthemion-like flowers, springing symmetrically from two lotus-shaped forms. The time given for the working of the exercise was one hour, and those only who completed it received prizes.

Now, taking these facts into consideration, I think it sufficiently determines that the present system of black-board teaching is successful. If the difficulty of the exercise and the absurdly short time allowed for its working be remembered, it will be evident that those who completed it must have been possessed of considerable power; since to draw a symmetrical object in the time (and that no simple one) was no easy task. This power in drawing has been acquired by the ordinary system of parochial school teaching; and thus the question as to whether the system be a good one may, I think, be answered in the affirmative. That there are many features in it which might and must be considerably modified is undoubtedly the case; but this might be accomplished if the Press would take some interest in the subject, for it is useless to hope for any great improvement from any other source. Such facts as I have above stated will, I trust, show the importance of the matter, one which has come especially under my own observation, and upon which I have expended much time and investigation. The probability of such instruction becoming general, in all national and other schools throughout the country, must render any practical information concerning it of some interest to those who are interested in such subjects; I will therefore, with your permission, at a future time, give you some results of my own experience on the subject, hoping that the difficulty of obtaining reliable information concerning it will render any I can give you not wholly unwelcome.

WALTER SMITH.

PUBLIC OFFICES COMPETITION.

THE public will be admitted to see the designs on Monday next (the 4th). The judges are appointed, but Sir Benjamin Hall objects to their being known until the drawings have been publicly exhibited. We have received several letters as to the hanging, but as it is now done, it would be useless to insert them.

IN your number of the 25th ult. your correspondent "Renardus P. C." writes, "If there be a competitor who has been mad enough to tint or shadow his elevations, let him be made a public example."

I agree with "Renardus P. C." as regards the tint (and should be "narrow-minded" enough to exclude also designs with "floors and corridors made yellow or blue"), but not as regards the shadow.

The "instructions" say, "The elevations are to be in line only;" not in outline only. Therefore line etching and shadowing are allowed to any extent.

As others besides myself have taken this view of the instructions, after due consideration and advice, perhaps you will be so good as to give publicity to these remarks from

A COMPETITOR WHOSE ELEVATIONS ARE SHADOWED, THOUGH "IN LINE ONLY."

MECHANICS' HOUSES, ROSEBANK, EDINBURGH.

THE plans and details given on the opposite page illustrate some houses built for the better class of mechanics and others at Rosebank, Edinburgh, for Mr. James Gowans, under the direction of Mr. Alexander Macgregor, architect, of that city.

The advantages attained for each house by the plan are, first, a distinct and independent entrance; secondly, a plot of ground for bleaching or for flowers; thirdly, a water-closet; fourthly, a scullery, with washing-tubs, bath, and hot water; fifthly, a separate access to each apartment from the lobby, without going through the adjoining room; and, sixthly, ample provision for ventilation and for warming the small bed-rooms, which have no fireplaces.

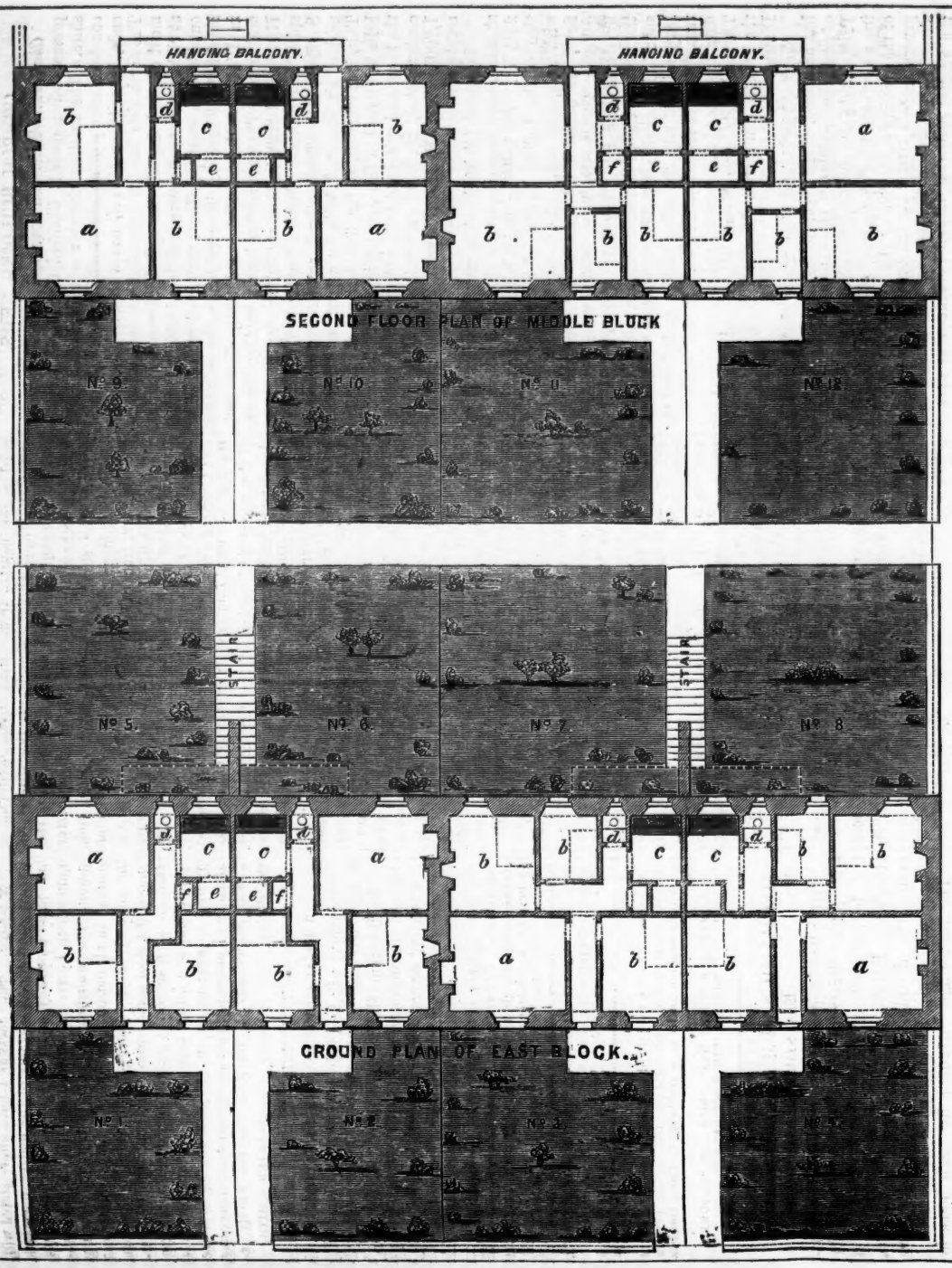
The cost of each house at Edinburgh, executed with well-squared rubble stone, and droved stone dressings, including all the appliances for warming, ventilation, and drainage, enclosure and stair-railings, &c. and finished in substantial style, was 220*l*.

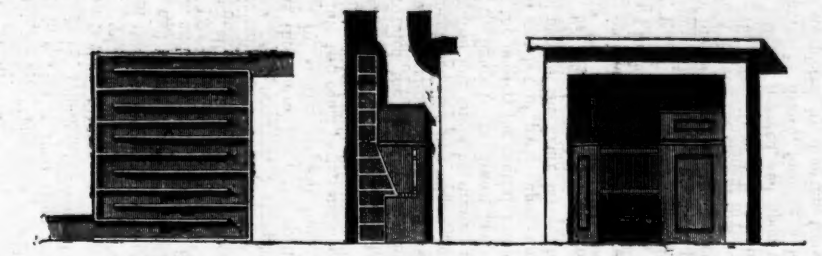
REFERENCES.

a. Kitchens or sitting-rooms, floored with deal.
b. Bedrooms.
c. Sculleries, with trough at end, which is convertible into two washing-tubs, sink and washing-tub, or a bath, when required.
d. Water-closets, having a spring by which the opening of the door flushes the pan.
Nos. 5, 6, 7, and 8, are the plots for the houses above Nos. 1, 2, 3, and 4.
Fig. 1. Elevation of kitchen chimney, showing boiler.
Fig. 2. Cross section of ditto.
Fig. 3. Section of fire-clay back of kitchen grate for warm air.
A A A. Drawing of the fire-clay back to kitchen grate, showing the divisions or chambers for warm air. The cold air from the grated openings at X travels across the whole back of the fire-place, and is carried into those rooms which have not fire-places by hollow bricks in the partitions.
Fig. 4. Trough in scullery, with moveable centre, to be taken out when used as a bath.
Fig. 5. Plan of kitchen fire-place.

CLOCK FACES.—Permit me to inquire, through the medium of your columns, what is the best and most economical material for the face of a parish church clock? Our present clock-face has a southern exposure, an elevated situation, and, with southerly gales, is washed with the salt spray of the sea, from which it is distant about one-third of a mile. Copper, cast iron, cement, glass, wood, have each their advocates. Your kind insertion of this inquiry may elicit some valuable information from parties who have directed their attention to the subject.—M.

HOUSES FOR MECHANICS, ROSEBANK, EDINBURGH.—Mr. A. Macgregor, Architect.





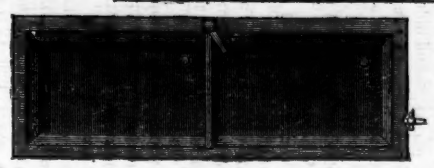
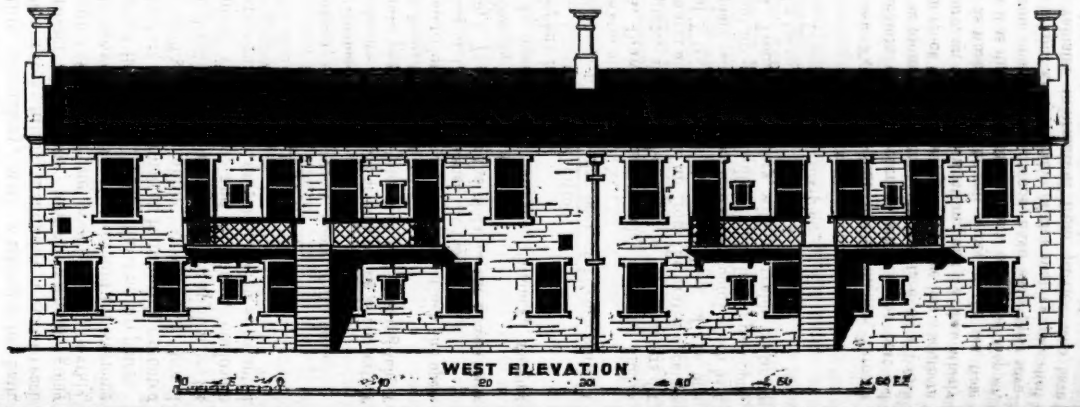


FIG. 4

FIG. 5

EAST ELEVATION



CHURCH BUILDING NEWS.

Chalford.—Some additions and alterations are at present being made at Chalford Church, Gloucestershire. The existing church was built in 1724, and consisted merely of a plain parallelogram, with gable ends, but with an M roof, and with a small bell-cot. The north aisle has the somewhat unusual arrangement of consisting of seven cylindrical vaults running at right angles to the nave, and terminated upon the outside by a corresponding number of gables. The length of the nave was increased, and a chancel added in 1741, by Messrs. Foster and Sons, of Bristol, architects. The contract has been signed by Messrs. Hook and Restall, builders at Chalford, for the tower, spire, and porches. Messrs. Naylor and Vickers, of Sheffield, have offered to lend, and fix free of cost, a peal of six cast-steel bells for a year for approval. This, it is believed, is the first instance of cast-steel bells being used in this country in peals. Including the tower and spire, and bells, and the other additions contemplated, the total cost will amount to about 1,700*l.* Mr. F. T. Gompertz is the architect employed.

Kingswood (*Bristol*).—The new Moravian Chapel at Kingswood was opened for divine service on the 25th ult. The building, which is in style a modification of the Italian, consists of a nave and transepts with an apsidal end. The transepts, on the ground-floor, are occupied by vestries, and over them are galleries, the vestries being divided from the chapel by glazed screens with curtains. The roof is open to the timbers, except that over the apse, which is hemispherical, groined, and finished in plaster. The internal length is 56 feet, the width 25 feet, exclusive of the transepts, and the height 25 feet. It will accommodate upwards of 270 persons, and has cost about 700*l.* The architects were Messrs. Foster and Wood, and the several contractors Messrs. Brown, Davy, and Diment.

Sneed.—The *Bristol Times* states that a meeting has been held, at the residence of Mr. J. S. Harford, of gentlemen residing in the neighbourhood of Sneed Park, to take into consideration the propriety of erecting a new church on that estate, for the convenience of the growing population of the neighbourhood. A general understanding was arrived at that the work should be at once attempted. It was decided that the edifice should be made to accommodate 500 persons, and cost 3,000*l.* or 4,000*l.*, more than a moiety of which sum was subscribed on the spot.

Tedstone Delamere.—The parish church of Tedstone has been restored by Mr. Scott. He has retained the old walls of the nave, strengthened them by buttresses, and made good the foundations. A new high-pitched roof has been provided, and a two-light window inserted at the west end. The bell-turret is of wood, surmounted by a pyramidal shingled roof. The south porch is of oak. The chancel has been entirely rebuilt. The east window is a triplet under a containing arch, with shafts of polished serpentine marble in the interior: it is filled with stained glass by Hardman, representing "The Ascension." This window is the gift of Mr. James Wight, of Tedstone-court. The sill of the south-east window is lowered to form the sedilia. On the opposite side is a credence niche, and in the vestry is a piscina. The seats are of oak, and all open. There is accommodation for about 150 persons in the church. At the entrance to the churchyard a lich-gate has been erected. The builder employed was Mr. Pearson, of Ross.

Basford.—A committee has been formed, including the Duke of Newcastle, to carry out the restoration and enlargement of the parish church of Old Basford. Mr. Place, architect, has reported on a plan, whereby the accommodation will be increased from 414 to 714; and the duke thinks it could be easily extended to 800. The proposed works comprise the reseating of the interior, and rebuilding and enlarging the north aisle. The tower is to be repaired, and new high roofs placed upon the church. A new north porch is to be built, and a vestry provided at the east end of the north aisle. The church is to be heated by hot air, and a bed of concrete laid under the floors against the damp. The masonry generally is to be restored, and the churchyard properly drained.

Derby.—The foundation-stone of the intended new church of St. Michael, Derby, has been laid by Mr. T. W. Evans, MP. The edifice will consist of nave, north and south aisles, chancel, vestry, and tower. The peculiarities of the site have caused some variation from the usual arrangement in the plan of the church. The widening the public road in Queen-street, as arranged with the Local Board of Health, has so reduced the length of the churchyard from east to west, that, although the church will be built at the extremity of the churchyard at each end, it would not admit of the tower standing at the end of the nave: it will consequently be erected at the south-west angle, on the south side of which is the principal entrance to the church. The acute angle in the churchyard, at the junction of St. Michael's-lane with Queen-street, has caused the extension of the north aisle westward beyond the end of the nave: this projection forms an octagonal recess in the inside, suitable for an organ. The stone used for the walls will be from Duffield, Sydnope for the piers and arches, and for the windows, tracery, and carvings, stone from Ancaster, in Lincolnshire. The seats and timbers of the roofs will be of red deal, stained and varnished: the inner surface of the roofs will be lined with boarding, and Croggon's asphalte felt will be laid underneath the slating. The style of the building will be Gothic, of the geometrical period of the fourteenth century. An attempt has been made to retain the same character in the new structure as the present one possesses. When the tower is completed it will be about 60 feet high, a little more than the height of the old one. With the limited means at the disposal of the committee, it has not been thought desirable to attempt a structure vieing in pretensions either with the spire of St. Alkmund's, on the one side, or the tower of All Saints', on the other, but to form a bold, massive feature, that would produce an agreeable contrast with both. Mr. H. I. Stevens is the architect, and Mr. Charles Moody the contractor. There will be accommodation in the new church for about 450 persons—double the number provided for in the old one.

Westbromwich.—Efforts have been for some years made to provide a church at Greet's-green; and at length the contract for the erection of a church has been taken by Mr. George Robinson, of Redditch, the amount being 3,000*l.* Messrs. Johnson and Son, of Lichfield, are the architects. The building will consist of a nave, with north and south aisles, upwards of 73 feet in length; a chancel, and western tower. The total length of the church, from tower to chancel, is 120 feet; width, 58 feet. The exterior is of stone, and the style is Decorated Gothic. The building, including a children's gallery at the western extremity, will be capable of accommodating 607 adults and 227 children. The roof is to be open and stained. The site was given by Sir Horace St. Paul and Mr. Edward Jones.

Brackenfield.—The ancient chapel of the Holy Trinity, hitherto the only place of worship in the secluded village of Brackenfield, having become from age and decay quite unfit for the requirements of the inhabitants, besides being situate in a remote and almost inaccessible part of the district, it was thought desirable to erect a more suitable edifice. This has been at length accomplished, and the new church has been consecrated. It is erected in the centre of the district, on a site given by Mr. Turbutt. The edifice consists of nave, north aisle, chancel, vestry, and south porch. The style of architecture is that which was prevalent in the fourteenth century. The roof is open-timbered, and the windows are traceried: the seats are open benches. Two windows at the west end of the nave are filled with stained glass, executed by Mrs. Turbutt, and representing the Apostles, St. Peter and St. Paul. The floor is paved with encaustic tiles, from Messrs. Minton's manufactory. There is a provision made at the western extremity of the north aisle for the proposed tower, which will be completed when sufficient funds are raised for the purpose. The architect is Mr. J. C. Hine, of Nottingham; and the builders were Messrs. Lindley and Son, of Mansfield. The amount of the contract was about 1,250*l.* which has been met in a great measure by private subscriptions and grants from societies.

Walsall.—The foundation-stone of a new church at the Pleck, near Walsall, was laid on Wednesday inweek before last, by the Countess of Bradford. The edifice has been designed by Messrs. Griffin and Weller, of Wolverhampton, architects. It will be a Gothic structure of Early Decorated character, and will consist of nave, with north and south aisles, a north porch, north and south transepts, chancel, organ chamber, and vestry. The roofs will be high pitched, framed with open timber, boarded, and covered with blue and red tiles, the ridges being finished with open cresting. The sittings will be of deal, stained and varnished; the roof timbers also stained and varnished. The aisles and part of the chancel will be paved with black and buff quarries, and that part of the chancel within the rail with Minton's encaustic tiles. The east window will have three and the west four lights: the transepts will have three-light windows: all the window-heads will be filled with tracery. The clerestory will be lofty, with four traceried windows on each side. The building will be warmed by hot water. The church has been designed with a lofty bell turret, but it is expected that arrangements will be made for putting in the foundation of a tower and spire, to be added at some future time. A stained window has been promised for the chancel. The church will afford accommodation to 600 persons, including children, on the ground-floor. The contractor is Mr. Isaac Highway, of Walsall. It is in contemplation also to erect a parsonage.

Newland.—The foundation-stone of a Wesleyan chapel and school-room was laid at Newland, on Monday last, by Mr. John M. Hamilton, of Hull. The building is to be erected of white brick, with stone dressings, and will be in the early English style. The fittings and all the interior wood work will be stained, in imitation of oak, and varnished. The accommodation will be for nearly 200. The contractors are Mr. Cressey, of Hull, for the brick and plaster work; Mr. W. H. Shaw, for the mason's work; Messrs. J. and J. Benton, of Grimsby, for the carpenter's and joiner's work; Messrs. Richardson and Miller, for the plumber's and glazier's work; and Messrs. Dawber and Son, for the slating. M. Botterill, of Hull, is the architect.

East Bergholt, Suffolk.—On Wednesday, 22nd April, a new congregational chapel was opened in this place: Mr. C. F. Hayward, architect. The building is entirely of brick, the material of the neighbourhood, and the various colours are disposed with a view of bringing out the constructive lines. A triplet, with a circle above, fills the end gable, and a lancet-light flanks it on each side, while below is the doorway, with a boldly projecting slated hood. The side windows are lancet-lights, placed singly between buttresses. The roof, 35 feet span, is open, and the timbers stained, and the fittings generally are finished in this manner. The amount of contract was 820*l.* including school-room, and the accommodation afforded with this latter addition, which forms also part of the chapel, is 506 sittings.

STAINED GLASS.

St. Thomas's Church, Salisbury.—The great east window of this church has been filled with stained glass, designed by Mr. Alfred Bell, architect, in illustration of the 36th verse of the 24th chapter of St. Luke's gospel: "And as they thus spake, Jesus himself stood in the midst of them," in pursuance of a request to that effect, contained in the last will of the late Mr. William Smith, of Salisbury, who bequeathed 200*l.* therefor; the rest of the cost being provided for by his widow. The window is a rather late Perpendicular one, of five lights, divided into two rows by a deep transom, with some debased and extensive tracery above. The central compartment of the top row is somewhat higher than the others, and this now contains the figure of our Lord in the act of benediction. Around him, in the remaining compartments are grouped the eleven Apostles, who were then assembled together, all being so placed as to be looking up to Him (the central figure) in attitudes of surprise. Each of the Apostles is distinguished by his peculiar emblem. In the tracery above are contained representations of the dove and angels bearing palms. The drawings of the figures, and the forms and colourings of the robes, &c. are very fine, and we advise our readers to see for themselves this magnificent and munificent work, and addition to art in Salisbury. The manufacture was by Mr. Lavers, of Southampton-street, Strand, under the immediate direction of Mr. Bell.

Aylesbury.—One of the lancet windows on the north side of the chancel of St. Mary's church, has just been filled with stained glass, the work of Mr. Oliphant, to whom was committed the execution of the obituary window on the south side, presented by the family of the late Mr. Fowler, of this town. The general pattern of both windows is a reproduction of the design of the early English glass, in Chetwode Church. The vesicas of the new window contain representations of the Baptism and the Temptation of our Lord. The new window is presented to the chancel by the Archdeacon and Mrs. Bickersteth, as an act of kindly remembrance towards the late vicar, Mr. Pretyman, and his wife.

PROVINCIAL NEWS.

Beighton.—A national school has been opened at the small village of Beighton, between Norwich and Yarmouth. It is built with red brick and white facings, and roofed with mixed tiles, from a design by Mr. Brown, of Norwich, architect. The dimensions are 30 feet by 18 feet, and the cost has been 260*l.* The entrance is by an ornamental porch. The room above this porch is arranged for a free lending library, which will shortly be opened to the use of the cottagers. The school has been built by the aid of subscriptions and a government grant of 100*l.*

Newbury.—A Congregational school-room is about to be opened here. It is of brick, designed by Mr. Clacy, of Reading, and built by Mr. Hopson, of Newbury, and is 72 feet long by 33 feet wide, and 21 feet high, with means of converting a portion of one end into two class-rooms; in addition to which it contains two galleries, one 20 feet by 33 feet, the other 40 feet by 7 feet. The whole building will be lighted and ventilated with gas, on the new system of the "sun burner." The total cost of the building

will be about 1,100*l.*, a considerable portion of which has still to be raised.

Chatham.—The large new tidal basin in course of construction at Chatham Dockyard is progressing, and, as soon as completed, will afford accommodation for line-of-battle ships. The new dock has been built on the site of the old No. 2 dock, and will be of the length of 360 feet, and 92 feet broad. The foundation of the basin has been laid on beds of concrete, the bottom and sides being of granite. It is in contemplation to lengthen the adjoining, No. 3, dock nearly 100 feet, making its length upwards of 300 feet, so as to admit a larger class of vessels. Messrs. Rigby, the contractors, have also lengthened No. 7 granite slip 60 feet, making its total length 330 feet.

Devizes.—The foundation-stone of the Corn Exchange at Devizes was laid on Wednesday in week before last, by the Mayoress of Devizes. The building (which is designed by Mr. Wm. Hill, of Leeds, architect) will be of Bath stone; and the contractor for the works is Mr. James Randell. The principal façade towards the market-place will be 46 feet in length, and will consist of four Corinthian columns, with rusticated pilasters at the angles, supporting a cornice, with blocking and balustrade above. Surmounting these, in the centre, will be a figure of Ceres with agricultural emblems, on an ornamental pedestal; and vases will crown the blocking at the angles of the building. The roof will be partially covered with slate, and the upper portion with glass. Arrangements are made for ventilation by louvres on each side of the whole length of the building between the slate and glass roofs. The interior area of the building will be 136 feet long by 42 feet wide. The floor will be of wood.

Axbridge.—Mr. Cox, of Highbridge, builder, is the successful competitor in his contract for building the intended police-station and lock-up house for the county constabulary at Axbridge. Mr. Cox's contract was 1,350*l.* There were five other estimates sent in for the work.

Birmingham.—A new temperance hall, on a more comprehensive and convenient plan than the present one, is projected to be erected at Birmingham.

Hull.—The Hull Ragged and Industrial Schools approach completion. The scaffolding has been removed. It is in the Tudor style, from a design by Mr. Botterill, of Hull, architect, approved by the Committee of Council on Education, who contribute a liberal sum towards its erection. The walls are of red pressed stock bricks, laid in dark-coloured mortar, and relieved with stone dressings. The roofs are of high pitch, slated, with ornamental crest at the ridge. Above one of the entrances, in the eastern facade, is a clock and bell turret, and a ventilating turret surmounts the intersection of the roofs over the dormitories. The works have been executed by Mr. Hall, the contractor, under the superintendence of the architect. The principal buildings comprise—on the ground floor—industrial rooms, 28 feet by 29 feet, and 27 by 16; committee-room, 18 by 11¼; kitchen and scullery each 15 by 15; boys' and girls' bath rooms, each 15 by 15; and on the first floor, boys' school-room, 27 by 28; girls' school-room, 25 by 28; and boys' and girls' dormitories, 30¾ by 15 each. The two playgrounds each contain about 450 square yards, and are separated by the school buildings.

SCOTTISH BUILDING NEWS.

Edinburgh.—The restoration of Old Greyfriars' Church is nearly completed. This church was destroyed by fire in 1845, and has been for nearly a year past in process of restoration, under the superintendence of Mr. David Cousin, the city architect. The interior is entirely open and unencumbered by pillars or galleries. The roof is of open wood-work, and the windows are all filled with stained glass, as memorials of former ministers. In the eastern gable is a large window of five lancet lights, contributed by the congregation. Above this is a small clerestory window of three lights, filled with stained glass by Mr. Ballantine, the artist in glass, as a personal contribution to the work of restoration. To the right of the great window is a triplet window, erected in memory of the Rev. Dr. Erskine, by Mr. Thomas Erskine, of Linlethan, and others. On the north side of the church, a twin lancet has been filled with glass in memory of the Rev. Dr. Finlayson, after one of the early windows in Cologne Cathedral. This window is contributed by Principal Lee. To the left of the large east window is a triplet in memory of the historian, Dr. Robertson, erected by the Earl of Minto and others. On the south side of the church another triplet is erected in memory of the Rev. Dr. Inglis. The glass is similar in character to the former, and the subject of Paul preaching at Athens is introduced, in allusion, it is said, to Dr. Inglis having originated the Mission for Schools in India. This window is contributed by the Dean of Faculty and Mr. H. M. Inglis, as a memorial of their father, a minister of Old Greyfriars'. On the same side of the church is a twin window, erected by Mr. Anthony Trail, W.S., in memory of the Rev. Robert Trail. The glass is similar in character, though less elaborate than the two former. A twin window has been erected, the work of Mr. Barnett, of Leith, on the north side, in memory of the Rev. Dr. Anderson. The triplet window facing the entrance-door was erected at the cost of Mr. James Buchanan, of Moray-place, and is dedicated to the memory of the Scottish worthy, George Buchanan. The whole of these windows, with the exception mentioned, have been executed in the establishment of Messrs. Ballantine and Allan.

Glasgow.—The Dean of Guild Court of Glasgow met last week to dispose of some applications for liberty to erect new buildings. Among others, "Mr. Peter M'Fayden, cabinet-maker, Argyle-street," prays to be permitted to build a range of dwelling-houses in Lyon-street, Cowcaddens. This range is to be five stories in height, and is to be divided into single compartments of about ten feet square. One narrow common stair will conduct the occupants to six of these rooms on each story, or, in other words, to thirty lodgings from the floor to the top of the building. Each room, of course, will be occupied, according to the arrangement, by a family which may be either large or small—in the majority of cases large: if five be taken as the average, there will thus be 150 persons entering by one door and living up one narrow stair in thirty rooms of ten feet square! A more shameful proposal has never been made. It is known already by experience what such ranges of tenements are. They are dens of disease, of thieves, of drunkenness, and of every form of profligacy; yet the court, for want of powers, according to the *North British Mail*, is compelled, against its own better judgment, to sanction the proposal!

Dunbar.—The repair of damage done to the breakwater of the Victoria Harbour during late storms is now proceeding. The work has been contracted for according to a plan and specification by Messrs. Stevenson, C.E. and in keeping with an extensive improvement of the whole works, and the deepening of the harbour on the land side.

Elgin.—The wooden fencing in front of the North of Scotland new Banking Office has been removed. The building, according to the *Forres Gazette*, is there stories, and the Banking Offices are on the ground floor. The whole is partly dobbed and polished freestone from Newton Quarry. Mr. Urquhart, builder, slater, and carpenter, has executed his parts of the work. The building occupying the site of the gloomy Trades' Hall gives an aspect of cheerfulness to this part of the town, which it knew not when the broad shadow of the old Jail and Court-house rested on it. The shutters, which are new in the North, are Bunnet and Co.'s patent non-curvilinear shutter, of iron stripes, Venetian-blindwise.

Inverness.—In the terms of resolutions adopted at a recent public meeting, the inhabitants of the town and county of Inverness have forwarded a memorial to the Home Secretary, in which they say,—"That it is believed that, exclusive even of the counties of Caithness and Argyle, the other great districts of the Highlands in question contain at least from 600 to 700 lunatics, most of them paupers;" and praying that authority be granted to the northern counties, by Act of Parliament, to borrow money for the purpose of defraying the cost of the original construction of an Asylum, upon terms similar to those embodied in the 19th and 20th of Victoria, cap. 117 (29th July, 1856), with power to assess themselves for its repayment, extending over twenty or thirty years, and this without waiting for the report of the General Lunacy Commission for Scotland.

ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION.

ON Wednesday, the 29th ult. a meeting of architects and others desirous of forming an association for procuring and furnishing to the members, photographs of architectural works of various countries, by means of a moderate subscription, was held, by permission of the council of the Institute of British Architects, at their rooms, No. 16, Lower Grosvenor-street, Grosvenor-square, Mr. Ferrey in the chair.

Mr. Hesketh stated that he had only ventured in the first instance to ask the attendance of several gentlemen, chiefly in the profession, with whom he was personally acquainted, in order to consult their views, and ask their advice before the proposition should be submitted to the profession generally and the public. He then pointed out the particular adaptation of photography for obtaining correct and beautiful representations of architectural subjects, beyond perhaps any other purpose to which that art had been applied, and it appeared to him that the profession ought to endeavour to make a greater use of it, and by co-operation to lessen the cost of photographs. Having mentioned the reasons for considering that a very great reduction might thus be made in the cost, he showed the means which seemed to him, amongst others, available for carrying out the objects proposed; through the members of the profession and other friends who would be shortly travelling to various parts, and who might obtain negative photographs of the buildings in some of the places they would visit; through presents of negatives, which would doubtless be made to the association; perhaps, too, the Honourable the East-India Company might be willing to assist them in India. He had communicated also with a scientific officer of the Royal Engineers, who, with another officer of the corps, was present, and would, perhaps, inform the meeting whether they might hope for assistance from them and from the Company's Engineers in the different parts of the globe in which they were quartered.

Sir Charles Barry expressed his cordial approval of what had been proposed, and urged that the Association should be confined to architectural subjects exclusively. He also recommended that the Association should afford to architects facilities for obtaining photographs of their own works during their progress or otherwise, as it was a most useful means of obtaining an intimate knowledge of the progress of works at a distance. He then moved the following resolution, which was passed:—

"That an association, having for its objects the procuring and supplying to its members photographs of architectural works of all countries, is eminently calculated to be of benefit to the architectural profession, by obtaining absolutely correct representations of those works, and to the public, by diffusing a knowledge of the best examples of architecture, and thereby promoting an increased interest and love of the art."

The following gentlemen were requested to act as a provisional committee, to obtain members, and to draw up regulations for the management of the association, to be submitted to a general meeting:—Sir C. Barry, Messrs. Ashpitel, Clifton, M. D. Wyatt, Ferrey, J. H. Hakewill, S. Wood, C. H. Clarke, Salvin, C. C. Nelson, H. B. Garling, P. C. Hardwick, G. Mair; Capt. Scott, R.E.; Capt. Ross, R.E.; Messrs. Papworth, Boutell, and Hesketh, with power to add to their numbers. Finally it was resolved,—That Mr. Hesketh be requested to act as Honorary Secretary *pro tem.*

THE ARCHITECTURAL PUBLICATION SOCIETY.

THE first part of the works for the year 1856-7 has just been issued, comprising illustrations to some of the articles in the letters A and B of the "Dictionary of Architecture." These, together with the previous plates, make thirty-five devoted to these letters.

The subjects are all of much interest at the present day. "Agricultural Buildings" occupy the two first plates, affording specimens of dairy farms erected in Dorsetshire and Gloucestershire: these plans show also the manure and surface drainages, and have been presented by Mr. Henry Drake. Another plan, comprising the Scotch system as practised in Berwickshire, is contributed by Mr. John Starforth, of Edinburgh, whose plans, issued by the Highland and Agricultural Society of Scotland, are already familiar to many of our readers; and lastly a stock farm, as just completed in Kent, and contributed by Mr. A. Ashpitel. These, together with the plans issued last year of practical farmsteads erected in Lincolnshire by the late Mr. E. Willson, of Lincoln, make a choice selection of modern examples for study. Five interesting examples of interiors and exteriors of "Apse," from Como, Venice (2), Arezzo, and Sebaste, are placed with a series of seven plans, showing the manner of forming this termination of a church, as practised from the ninth to the fifteenth centuries. "Arcade" has furnished two specimens from Assisi and Siena, plain and ornamented; and "Balcony," six examples from Venice, Vicenza, Florence, and Verona. "Bell" is illustrated by an exceedingly fine work,—that in St. Peter's at Rome: it is greatly to be regretted that this example was not made public at an earlier period, as, notwithstanding the defects in its very elaborate ornamentation, it forms a striking contrast to the paltry plainness of the "Big Ben" of Westminster, whose "decoration" is a disgrace to the state of the Fine Arts of the present day. Sections of the bells at York and Montreal are also given. "Bench ends" (tinted) opens up a subject in which much can yet be done by those who are not addicted to conform to strict precedent. The examples are taken from Cologne (6), Piacenza, Palermo, Siena, and from Great Tew and St. Cross in England. "Brickwork," showing its ancient applicability either for plain work, cut work, or use with terra cotta ornamentation, is illustrated in two tinted plates of examples from Siena, Verona, Milan (the Great Hospital), the minutely detailed Campanile (thirteenth century) of San Antonio, at Padua, with seven specimens of cornices from Bologna, Padua, Verona, Spoleto, and

Venice. The introduction of the bands of brick in the otherwise stone cornice of Verona is especially deserving of attention: reference will be found made to it in Street's "Brick Architecture." "Buttress" gives a worthy example from Nuremberg of a more than usual English character, with others from Bautzen, Cintra, Amiens, Troyes, and Brasted in Kent, which latter having a wide substructure allows for a small archway, and, its projection admitting of its being used as a porch, is suggestive. Two examples of Italian character are given from Florence and Venice.

The selection has been altogether judicious, and the members are greatly indebted to the liberality of those gentlemen who have thus so freely contributed their drawings for the use of the society. Besides those above mentioned, who are new friends, we see the names of Messrs. W. Lightly, F. P. Cockerell, G. Somers Clarke, H. R. Newton, W. Boutcher, and R. H. Shout, together with the more familiar names, as connected with the society, of Messrs. E. H. Martineau, Octavius Hansard, J. W. Walton, J. Lockyer, jun. T. H. Lewis, S. S. Teulon, and C. Fowler, jun. Messrs. Hansard and Lewis have likewise devoted much time to the collection and preparation of the drawings. On page 212 will be found a list of some of the subjects in the letter C, which the committee are now preparing to illustrate.

A few weeks since (p. 181), we adverted to the difference in the sale of books to architects and to engineers; and a strong example of the point we wished to advocate is given in the work in course of publication by the society. It is certainly a very striking instance of the fact, how little the profession interests itself in works more immediately bearing upon their pursuits, and how little it aids the class of works relating to it. As we have often urged before, there ought to be at least a thousand subscribers to this "Dictionary," instead of the present few hundreds: this would then enable the committee to carry out with energy the arduous task imposed upon them. Even the addition of some seventy or eighty members would now produce a year's issue without the necessity of a subscription. The profession should come forward in earnest at once.

COMPETITIONS.

Worcester Cemetery.—The committee have had much trouble in arriving at a decision. After long discussion by the town-council, three designs were selected. The sealed envelopes accompanying the designs were then opened, and it was found that the architect of "Trefoil" was Mr. R. Clarke, Shakspeare-street, Nottingham; of "Finis," Mr. R. Wheeler, London; and of "Faith," Mr. C. H. Cooke, London. The committee were duly instructed to carry out the plans, advertise for tenders, and report from time to time.

Nantwich.—Designs have been received for erecting, at Nantwich, Cheshire, a new town-hall, corn-exchange, news and reading rooms, &c.; and those submitted by Mr. Cranston, architect, of Birmingham, have been selected, and are to be carried out.

THE SERPENTINE IN HYDE-PARK.

FROM time to time public attention has been directed to this well-designed piece of ornamental water, which, in general effect, is scarcely surpassed by any other public decoration of the metropolis. It is certain, however, that the Serpentine, beautiful as it looks, must be put in the list of painted sepulchres, if we may use such a term; and it is to be feared that, unless proper means are taken, the condition of things will become worse, and it will be necessary to get rid of the ornament for the sake of wholesomeness.

It must be evident to every one who has looked carefully, as well as frequently, at this favourite place of resort, that the supply of water is quite insufficient for the purpose of causing a proper current to clear away the impurities. Looking over the railings of the road which crosses the east end of the Serpentine towards the Knightsbridge barracks, instead of seeing the water continually streaming down the artificial cascade, in nine cases out of ten the imitation rocks will be found dry—a stagnant green-looking pond at bottom—the vegetation in the season more than half-eaten away by insects: and it is curious to remark how few birds are to be seen in this shady place: there are, however, rats, in somewhat strong force, often to be noticed.

We would rather not enter into particulars as to the source and tributaries of this water, but would hint that it is not altogether so pure as it should be when it arrives at Kensington-gardens.

In order to remedy a manifest and increasing evil, various plans have been suggested. Some say let us have the bottom concreted, and the depth regulated; and this is a good hint. Others say let us have the water drained off, and the site planted with trees and shrubs. But who that has seen the sun setting redly behind the trees beyond the well-proportioned bridge, would for a moment recommend the planting of this place, if by any means it can be rendered wholesome?

It has also been suggested that salt water, for the supply of the Serpentine, should be brought from the sea at Brighton. This would be attended with enormous expense; and it is doubtful if salt water brought in this way, in such quantities as would be possible, would benefit the bathers in proportion to the cost; we could scarcely, in Hyde-park, by the mere presence of a salt-water lake, manufacture the bracing atmosphere on which the beneficial effects of sea-bathing so much depend.

Those who have seen the many thousands of persons who throng the Serpentine in the summer mornings and evenings, must feel how necessary it is that this piece of water should be kept in proper condition. We would, however, rather that this should be effected by means of a sufficient quantity of clean fresh water, natural in such a neigbourhood.

Are there no small rivers at a moderate distance from the spot which, by the expenditure of a reasonable sum, could be made to flow into the parks, and, after doing duty there, be sent to add a mite to the volume of "Father Thames?" for surely he will require some help before long. Our old and useful, yet dirty, servant must be fed by water from the land, in order to enable him to throw back the regular attacks of the sea; otherwise he must continue, as he has for some time done, to get smaller and less vigorous at his extremities.

This subject is well worthy of the careful consideration of all who feel an interest in the tasteful adornment of the metropolis, or who are anxious to provide a sufficient and proper bathing-place for large numbers of our pent-up mechanics and others.

THE AREA IN FRONT OF ST. PAUL'S.

IT is with much regret that we notice that this space, which, in the crowd and throng of the city, may in a way be compared to water in the desert, is still closed against the public. The police, the tradesmen, and all who have business in this crowded thoroughfare, say that the opening of the gates of this inclosure was a very great advantage. This damage has been done, most probably, by a mischievous boy or other person, and it would be well that he should be brought to justice. Surely the Dean and Chapter of St. Paul's should have used some means of doing so, and not closed a space and a pathway so useful to the public. It would be just as reasonable to shut up the cathedral of St. Paul's altogether, in case a mischievous person should unfortunately perpetrate some small damage in the interior; or that the British Museum should be closed, because a madman in the absence of the attendants broke the Portland vase. A reward of 10s. has been offered for the apprehension of the offender. I have at times seen advertisements of 2*l.* reward offered for a missing gentleman, and have wondered at the cheap consideration in which he was held, and *the reward of* 10*s. offered* for the apprehension of the person who has caused the public to be debarred the use of a most convenient privilege is hard to be understood, and shows a feeling which is not altogether creditable. I trust that the dean and chapter will reconsider this matter.—A WAYFARER.

GAS.

THE half-yearly meeting of the Great Central Gas Consumers' Company was held last week at the London Tavern, Mr. Dakin in the chair, when the chairman read the report, and congratulated the meeting on the prosperous statement which it conveyed to them. Their rental for the year ending Christmas last amounted to 54,228*l.* 7s. 4d. being an increase of more than 5,800*l.* over the preceding year, and 8,400*l.* over the rental at Christmas, 1854. This increase raised the net profit to 16,802*l.* 13s. 4d. The balance brought forward was 15,259*l.* 19s.: by deducting the amount of the depreciation fund, as settled for four years ending the 31st December, 1856, from the gross profits of 15,250*l.* 19s. the sum of 10,459*l.* 19s. would be left for paying the usual half-yearly dividend, after deducting all working expenses, interest on debentures, &c.; and out of that sum the directors recommended the payment of a dividend for the half-year at the rate of 8 per cent. per annum. This would absorb a sum of 6,919*l.* 13s. 7d. leaving a balance of 3,540*l.* 5s. 5d. to be carried over to the credit of the next half-year's account. Dr. Letheby's report, which formed a portion of the directors' report, stated the quality of the gas to be 23 per cent. over the standard of illuminating power required by their Act: 242 experiments had been made during the year.——At the Thames Police Court on 24th ult. Mr. Alexander Angus Croll, the engineer of the Great Central Gas-works at Bow-common, appeared before Mr. Yardley, to answer a summons taken out by Mr. Edward Fulcher, inspector of nuisances and sanitary inspector for the Poplar District Board of Works, which summons charged that several nuisances existed on the Gas Company's premises. After a long discussion, Mr. Yardley said it was admitted on all sides that the nuisance was of a threefold character; and it was agreed as he suggested, instead of making an order at present, that the summons be adjourned for six weeks on the defendant undertaking to cover over the tanks and the blue billy-pits, and prevent the escape of any offensive effluvia; also, that none but pure water should be used in cooling the glowing coke from the retorts, and that a longer time should be allowed to change the purification of the gas.

Gas has just for the first time been introduced into a Cornish mine—Balleswidden. Mr. A. Wright, C.E. who contracted to supply the gas, delivered a lecture on Gas to a large number of miners and others, assembled in the drying-house of the mine, and was listened to with great attention.

A public dinner was held at the Crown Inn, Staveley, on Wednesday week, to celebrate the opening of the gas-works in that place, erected by Mr. Marriott, of Staveley, under the direction of Mr. T. F. Cashin, of Sheffield, engineer. The company are extending their mains to the remotest part of the village, and at present they are charging 8s. per 1000 for gas, but shortly they expect to reduce it.

The existing Glasgow gas companies are paying dividends of 10 per cent. It is now proposed to establish a consumers' company, to meet the discontent which the present high rates occasion, by limiting the dividend to 7½ per cent. The company is to remain independent, but its charges are not announced.

PRESERVATION OF LEAVES.

IF your correspondent, "R. H. W." will take a dish and place his leaves and flowers on edge, or in such a position that he can embed them in fine dry sand without disturbing their forms, and afterwards dry them in the oven, he will find this a ready means of attaining his object. The heat should not be so great as to burst the delicate vessels. I believe this preserves the colour better than any ordinary plan. The yellows generally stand well, however dried; but whites, reds, and blues, have always an unpleasant tendency to dirty brown. Plants dried in this way are more or less crisp, and inconvenient to keep: my herbarium, of about 1,000 specimens, is made by placing a few sheets of newspaper over each plant, applying pressure, and changing the paper daily until dry. This is quite sufficient for giving the correct outline of the leaf; and a study of the *habit* of the plant in its wild state will enable the artist to adapt it to his purpose. FINIAL.

ELECTRO-MAGNETISM AS A WORKING POWER.

AT the Institution of Civil Engineers, on April 21st, the paper read was "On the Application of Electro-Magnetism as a Motive Power," by Mr. Robert Hunt, F.R.S.

The author commenced by giving the progress of the investigations by which Oersted first proved the connection between electricity and magnetism, and which led Sturgeon to construct the electro-magnet. The powers of this form of electric force, as developed temporarily in soft iron, naturally induced the idea of employing it for the purpose of exerting mechanical motion—doing work. The principles of the electro-magnetic machines of Dal Negro, of Botta, of Jacobi, of Armstrong, of Page, and others, were next described. It was shown that all engines acting by a direct pull were inefficient, from the circumstance that the repeated blows received by the iron, so altered its character, that it eventually assumed the quality of steel, and had a tendency to retain a certain amount of permanent magnetism. This induced Jacobi, after a large expenditure of money, to abandon arrangements of this kind, and to employ such as would at once produce a rotatory motion. The engine, thus arranged, was stated to have been tried upon a tolerably large scale on the Neva, and by it a boat containing ten or twelve people was propelled at the rate of three miles an hour. Page's engine, and that of Hjorth, which in 1851-52 excited much attention, were described as being in principle an electro-magnetic piston drawn within, or repelled from, an electro-magnetic cylinder. By this motion, it was thought that a much greater length of stroke could be secured than by the revolving wheels or discs. After having generally described the forms under which electro-magnetic engines had been constructed, the author proceeded to give, as the result of his experiments, confirmed by those of others, the difficulties which still stood in the way of the application of electricity as a motive power; and he endeavoured to enforce the law, that all mechanical force,

of whatever kind, whether horse or man power, steam power, or electrical power, involved a change of the forms of matter to produce that force;—that to produce motion it was essential to use matter, and that virtually, in all cases, it must be destroyed as a useful agent. Hence the commercial question of cost, he conceived, was greatly in favour of steam, and adverse to the use of electricity as a motive power.

A discussion, which was commenced, was announced to be continued at the next meeting.

Mr. T. Allan, whose improvements in electric telegraphs have been recently mentioned, has lately occasioned considerable excitement in Paris by the exhibition, at the desire of the Emperor Napoleon, of his electro-magnetic engines, which, according to the *Mechanics' Magazine*, are unquestionably the most successful examples in existence of the application of electro-magnetism as a motive power.

The main feature of Mr. Allan's invention consists in the application of electric currents so as to form several electro-magnets in succession, by means of which several impulses shall be successively given in the same direction to a rod capable of being moved longitudinally to any extent which may be required. At the commencement of a stroke the first of a set of keepers upon the rod is placed sufficiently near to the first set of magnets to enable them to exert an available force upon it, and to move it through the space that separates them. Therefore, when a current of electricity is applied to this first set of magnets, they accordingly draw down the keeper to them, and move the rod longitudinally through the space just mentioned. The next keeper is, by this means, brought within the same distance from its magnets, and the current of electricity is at the same moment cut off from the former and applied to these, which thereupon draw their keeper to them, and move the rod through an additional space or distance equal to the first; and the other magnets and their keepers will respectively act in a similar manner in succession, and thus complete the stroke of the rod; after which the opposite rod will be operated upon similarly, the reciprocating motion thus obtained being converted into rotary motion by means of the connecting-rod and crank in the ordinary manner. Mr. Allan has also arranged a rotary engine upon analogous principles, and a writer in the scientific periodical just named states that he has seen it produce very excellent results.

RECENT PATENTS FOR ARTIFICIAL STONE.*

No. 2,267. FREDERICK RANSOME, Ipswich.—*Improvements in the manufacture of artificial stone, and in rendering it and other building materials less liable to decay.* Dated 27th September, 1856.—This invention is applicable, first, to those descriptions of artificial stone which are compounded with sand, clay, and other mineral or earthy substances, together with soluble silica or a soluble silicate, and the invention consists in adding to the composition of such artificial stone a substance which will fuse more readily than the sand, and will run into and fill the pores of the stone, and thus render it more dense than when compounded without such addition. The substances which the patentee prefers to employ for this purpose are pumice-stone or a readily fusible glass. In preparing the artificial stone he prefers to mix the ingredients in the following proportions, by measure—Silicious sand, 30 parts; finely-powdered silica, 10 parts, solution of silica, or silicious cement, 5 parts, sp. gr. 1·700; powdered pipeclay, 5 parts; pumice-stone prepared in a way described, 5 to 10 parts. When he employs a readily fusible glass in the manufacture of artificial stone, he prepares the glass by fusing together in a reverberatory furnace or crucible the following materials—Silicate of soda, 100 parts, sp. gr. 1,400 parts; oxide of lead, 100 parts; and in preparing artificial stone he substitutes for the 5 to 10 parts of prepared pumice-stone, in the mixture before mentioned, 5 to 10 parts of the fusible glass. The invention also consists in a method of rendering artificial or natural stone, bricks, and other materials used for building purposes, less liable to decay. For this purpose the stone or other material is coated or saturated wholly or superficially with a solution of a soluble silicate, and has afterwards applied to it a solution of chloride of calcium, by which an insoluble silicate of lime is formed in the body of the stone or other material.

2,282. GEORGE TOMLINSON BOUSFIELD, Sussex-place, Loughborough-road, Brixton, Surrey.—*Manufacture of artificial stone.* A communication. Dated 29th September, 1856.—This invention consists in a composition of matter to be used as a substitute for stone and bricks for building and engineering purposes. For this purpose the patentee takes of ordinary chalk from 80 to 85 parts, and of slaked lime from 15 to 20 parts, by measure. The ingredients are well pulverised and mixed together with sufficient water to give the proper consistency for moulding. The paste thus produced is then moulded with a proper degree of pressure, to cause the particles to adhere together into any form suitable to the purposes designed. After coming from the moulds the blocks or tiles are allowed to dry a few days in the open air, and are then ready for use.

* From the *Engineer*.

RECENT BUILDING PATENTS.*

1339. J. NORRIS, Jun.—*An Improvement or Improvements in the Manufacture of the Cutting Tools employed in Nail-making Machines.*—A communication. Dated June 5, 1856.—In forming such cutting tools, the patentee employs a mixture of one-half of the best sterling iron incorporated with one-half of malleable iron; or equal parts of white and gray iron producing a malleable iron. The cutting-tool being cast in either of these mixtures, and the ends and edges being chill cast, the cutter is dressed or faced on a lap.

2056. EUGENE ARMAND ROY, JOHN ARCHIBALD HALL, and WILLIAM THOMAS BINNS, all of Camden-town, Middlesex.—*Means of ensuring Draught in Smoke Flues or Chimneys.* Dated 4th September, 1856.—The patentees use a fan on the screw-propeller principle, to revolve in the flue or chimney, or in the pot or cowl, so as to propel the smoke and air.

2063. RICHARD ARCHIBALD BROOMAN, Fleet-street.—*Improvements in Buildings and Parts of Buildings.*—A communication. Dated 4th September, 1856.—The object of this invention is to provide economical means of constructing roofs, roof-frames, and other buildings or parts of buildings in iron. The parts are made in pieces, and so that they may be easily set up, taken down, and carried from place to place.

2083. PETER ARMAND LE COMTE DE FONTAINEMOREAU, Rue de l'Echiquier, Paris.—*Making Artificial Stone for Statues and ornamenting purposes.*—A communication. Dated 6th September, 1856.—The inventor mixes argil with red ochre or iron ores, in the proportion of about one-fifth argil. This mixture is pulverised and sifted, and thrown into recipients prepared for the purpose. It is then sprinkled with acidulated water. The product of this operation resembles ordinary plastic clay, and may be moulded and manipulated by pressure, or by any other known means. When required to produce ornaments like porcelain handles, the ordinary hand process is adopted, the joints being imperceptible after the baking. The material thus prepared and moulded to the required form is passed to the drying chamber, and thence to the kiln, where it is submitted to a temperature at least equal to that required for fire-bricks. At this degree of heat the product undergoes a certain amount of vitrification, which gives to it a polish and blueish colour, between that of iron and polished slate, and at the same time a hardness of texture which enables it to be advantageously substituted,—first, for granite and marble for pavements, chimney-pieces, table tops, statues, &c.; secondly, baked earths for retorts, boilers, and vessels of all kinds employed in chemical manufactures, the composition being in no degree altered by the acids.

Gas.—M. Emile Kopp, of Paris, professor of chemistry, has provisionally specified improvements in the manufacture of gas, which consist in new arrangements of furnaces and retorts in which gas is produced, either from coal or other organic substances, in such manner that the preparation of gas, instead of being intermittent, becomes continuous; the furnaces and retorts being constantly heated to the required temperature, and never being empty. By means of suitable mechanical arrangement, such, for instance, as an endless iron chain and a piston, coal or other fuel is gradually and continually introduced into the retorts, passes slowly through them, disengaging gas and being converted into coke, which coke or other residuum is continually discharged, hydraulic occlusion preventing any undue escape of gas, which latter remains constantly of the same quality during the entire time of manufacturing.

2077. JOHN JUCKES, Dame-street, Islington.—*Stoves and Fire-places.* Dated 6th September, 1856.—In carrying out this invention, that portion of a stove or fire-place in which the fuel is contained is arranged to turn on an axis at the back, and it has a grating or set of fire bars in front. The basket or fire-place may be made of various forms: it is, however, preferred to be of a spherical form, with a door at the top and the bottom, which is composed of fire-bars or otherwise for the passage of air. When the fire requires fresh fuel it is put into the fire-place through the doorway, which for the time being is uppermost. The door is then to be closed, and the fire-place or stove is to be turned half way round on its axis at the back, by which the fresh coal will come below the well-ignited fuel of the fire. The peculiarity of this construction is, that the axis is only at the back, and the fore bars are in front.—*Not proceeded with.*

* Gleaned from lists in the *Mechanics' Magazine*, the *Engineer*, &c.

ON THE APPLICATIONS OF BOTANY TO ORNAMENTAL ART.

AT a meeting of the Edinburgh Botanical Society, on the 9th instant, Mr. George Lawson exhibited a panel carved by Mr. B. Reeve, representing in its side ornaments Polypodium alpestre and Poystichum Lonchitis. In connection with this study from nature, he called attention to the inexhaustible source of novelty in design which the vegetable kingdom presents, and which he hoped would be made more fully available than hitherto, for although "flowers have in all ages been used by the aspiring ornamentist, and have ever been the basis on which the science of ornament has stood," much still remained to be done. Even in our own day novelties are occasionally introduced by enterprising designers; still, how easy would it be to catalogue all the vegetable forms that have actually been referred to in design. Of the ninety-three thousand living plants (not to speak of dead species), how few have actually come into general use for this purpose! Dr. Lindley, and, more recently, Mr. Dresser have done much to elucidate this very subject of the relations of botany to ornamental art, and with such aids, the wall of separation that has so long existed between the botanist and the ornamentist will surely be speedily broken down. Mr. Lawson then referred to some of the authors who had been instrumental in drawing attention to this subject, alluding particularly to Pugin's "Floriated Ornament," and to various writers in the *Builder*, *Art Journal*, &c. He proceeded—It is to be kept in view, when the artist is recommended to study nature under the light of science, that this does not *necessitate* a naturalistic treatment of his subject. Attention to botany is even more essential to him who would create a design by the conventional treatment of natural forms, than it is to the naturalistic designer. It is what anatomy is to the painter of the human figure. It enables him to modify his leaves and flowers according to the requirements of his design, without overstepping the boundaries of truth, and originating a caricature, instead of adapting nature to his special purpose. It is a common error to suppose that the artist has merely to take natural forms as his starting-point, and give these a geometrical disposition, modifying them according to his taste. Truth to nature is necessary in all decorations intended for an educated eye, and especially so in an age of science. And the beautiful laws of form, and of colour, of number, and of arrangements of parts, that prevail throughout the vegetable kingdom, are necessary to be known by the artist who has high aims. This knowledge loosens him from the trammels of a mere copyist, and gives him a wide range of conventional treatment, while his work assumes the character of an exposition of principles instead of a slavish copy of details.

It is a well-known fact that many of the finest carved works, in both ancient and modern buildings, are *direct* studies from nature; and several modern writers have lately pointed out to designers, that it is to "natural forms geometrically disposed" that they must *all* look for new inspirations. "By repeated copying," says Pugin, "the spirit of the original work is liable to be lost: so in decoration, the constant reproduction of old patterns, without reference to the natural type from which they were composed, leads to debased forms and spiritless outline, and in the end to a mere caricature of a beautiful original. It is impossible to improve on the works of God; and the natural outlines of leaves and flowers must be more perfect and beautiful than any invention of man."

METROPOLITAN BOARD OF WORKS.

THE REGULAR LINE OF BUILDINGS.

AT a meeting of the Board, held on Friday, the 24th ult. a deputation from the Board of Works for the Westminster district attended, with reference to the building recently erected by Messrs. Broadwood and Sons, in the Horseferry-road, Westminster. The particulars of the case will be recollected by our readers. The Board of Works having refused to sanction the erection, the duty of ordering the demolition of the work was cast, by the very objectionable arrangement in the Act, upon the District Board of Westminster. That body, for their own protection, took the opinion of counsel, and the following is the substance of the opinion so taken. Mr. Bovill, Q.C. to whom the subject was referred, says;—

"I am of opinion that the regular line of buildings mentioned in the 143rd section does not necessarily mean a regular line of buildings from one end of the street to the other end. Many portions of a continuous street or highway are commonly known and considered as separate

streets, are distinguished by different names, and often situate in different parishes, and it is in my opinion sufficient to bring a case within the section of the statute that the buildings in any part of a continuous street or highway are of such a number and character as to assume the form of a regular line of buildings in the ordinary acceptation of the term. The language of the 143rd section, which speaks of the regular line of buildings in the street, and not of the street, seems to me rather to lead to that conclusion, and I think the meaning is made clearer by the interpretation clause."

He went on to develop the grounds upon which this opinion had been formed, which he said was one of some importance, not free from difficulty, and suggested that a decision should be obtained in a special case to be submitted to a court of law. An opinion was also obtained from Mr. George Pownall, surveyor, which agreed with the views taken by Mr. Bovill.

Mr. Mills (a member of the deputation) said they attended from the District Board to ask this Board to give them facility for obtaining the fullest information upon this subject; not for the purpose of taking down the building, or to give any further opinion as to whether Messrs. Broadwood had complied with the Act of Parliament, but to put them in possession of all cases the Board might have on this subject. In calling upon the District Board to carry out the law as laid down by the Metropolitan Board, they really thought it was beginning at the wrong end, and that the Central Board should have the power of carrying out their own orders.

The chairman said they sat there to administer the law, and had no further jurisdiction in the matter than the Act of Parliament conferred upon them. They had no power to demolish the building in question, as that was a duty cast upon the District Board, and could not now discuss any alteration in the law. Any information that was possessed by the chief office would, of course, be at the service of the District Board.

RESTORATION OF THE BASILICA, TREVES.

THE traveller who descends from the surrounding heights into the valley of the Moselle, is chiefly attracted by two grand structures—the *Simeon's Gate*, which, according to Kugler, is a Merovingian structure, whose huge stone blocks have become blackened by the long lapse of time; while the *Basilica* rears its bold but slender brick structure up into the air. There can be no doubt that this is a Roman building, and the so-called Roman Baths, which rise at a short distance from the present city walls, present the same building material, and the same style, and it becomes probable that the whole neighbourhood was once occupied by a complexity of similar buildings. This Basilica has been considered hitherto to have been a palace of Constantine, a theatre, or a hippodrome. It is Professor Steininger, the assiduous searcher of the antiquities of Treves, who has proved its real destination, namely, that of a basilica, and any one who knows the description given by M. Wackernagel, of the Basilica of Pompeii, and compares them both, will be assured of the correctness of that belief. The basilicas of the Romans served as courts of justice, and as a meeting-place for merchants; and when of late the modern accessories of the building were removed, and the interior of the fine building had become visible, this turned out to be still more evidently true. It is to be seen now, that of the original Roman structure, there only remains the semicircular tower called *Helenen*, or *Heidenthurm*, in which is the bold arch of 60 feet span, and the western longitudinal building, with the two rows of large arched windows, which are separated by strong pillars, and a portion of the eastern wall, which may have been demolished on the building of the archiepiscopal palace. The whole building is constructed of flat bricks, combined by layers of mortar, and forms a square of 180 feet long, and 88 feet wide, its height being 100 feet. On both sides of the semicircular building, in which stood the seats for the judges, rise the two last pillars of the longitudinal walls, and form turrets for the staircases, which reach above the roof, which serves for a vault. The front, turned towards the present *Paradeplatz*, in which is the main entrance, has large niches instead of windows, in which statues will now be placed, and above the pediment the Christian emblem will be raised.

As the soil has risen, through the lapse of centuries, 10 feet, a staircase leads on the west side down to the portal. The many fragments found in the rubbish show, that the floor of the main building was paved with marble and granite plates, forming various designs. This floor rested on small brick pillars, through which warming conduits passed. The floor of the tribunal also must have been transected by heating conduits. The walls of the circular building, as well as the niches therein, were nicely painted or inlaid with many-coloured pebbles, mosaic-like, which forms a very humiliating contrast with the barn-like rooms now called Courts of Justice. When the soil around the Basilica had been removed, of late, a splendid piece of mosaic was discovered, which was *older* than the building, as the walls had been built into its mass.

The remnants of this Basilica had been presented by the municipality to the King of Prussia, who ordered its restoration as a Protestant place of worship. It was confided to the care of M. Schnitzler, the architect, and M. König, the builder, and they have made it such a structure as may hardly be matched thisside the Alps. If we fancy the height and breadth of the building, whose interior is not divided by either columns or pillars into several naves—its whole splendour and majesty become apparent. On each side four rows of windows admit the light, to show us the ornamentation of the interior, which is quite in accordance with the simple yet grand style of the building. Strange also have been the fates of this mystical, long-neglected structure. When the Franks had made an end to the Roman domination on the Moselle, the Basilica of Treves was converted into a King's Court (*Königshof*), in which resided the palatines of the monarch, the suzerains of the Church, and, in fine, the bishops themselves. In the beginning of the eleventh century it was converted into a fortress flanked by turrets and fosses, until it got lost amongst the indifference of succeeding ages.

THE PAVING TILES OF THE MIDDLE AGES.

AT the second *Conversazione* of the Somersetshire Archæological Society, held at Taunton, some mediæval tiles from St. James's churchyard were exhibited, and the following remarks by Mr. C. E. Giles were read:—

The clay manufactures of the Middle Ages have hitherto not been sufficiently investigated, and consequently are little understood: ancient examples should therefore be in all cases preserved in their original positions if possible, but otherwise in public Museums; and the facts connected with them should be carefully recorded. The tiles found in the churchyard of St. James, Taunton, are, I think, of interest, from the fact that the design or pattern on them is only superficial, or painted by hand, as in the case of china-ware. It has been supposed that the superficial colouring on clay was introduced into England through Italy from the East, in the reign of Elizabeth; but as tiles are said to occur of this kind, of earlier date, the supposition is perhaps doubtful. In this case the pattern on the tiles seems to be of a much earlier character of design than is usually found in Elizabeth's reign. There are said to be tiles of this manufacture in the Mayor's Chapel at Bristol. An examination of the floors of our remote country churches in this district would, I think, throw some light on the subject. In the larger churches the floors have been "beautified" in the eighteenth, and "restored" in the nineteenth centuries; so that for these historical interest at least has ceased. But I have some idea that many churches west of Taunton, including Tolland, still possess remains of their ancient floors, to the colours of which in late years, in some cases, has been added a rich natural green. It is, however, certain that tiles with superficial colouring did not form the staple manufacture of the Middle Ages. The common type was made in this manner:—A thin square of clay was partially dried in the sun, and then impressed by a stamp, having a design in relief. This produced a pattern in cavetto, into the hollows of which clay of another colour was afterwards inlaid. The permanence of the work was then secured by a thin metallic glaze, which also gave richness and tone to the whole. Sometimes the hollows were never filled at all, and in other cases the pattern, instead of being in cavetto, was in relief. The first was, however, the usual type of manufacture throughout Northern Europe. South of the Alps, incised stone or marble supplied the place of the clay tile; and for the pattern-coloured glass or precious stones, that of the coloured clay. There are examples of this kind in Canterbury Cathedral, and elsewhere in Northern Europe. Sometimes, after the glaze of the surface has perished, the inlaid pattern has fallen out. This seems to have happened in the case of the tiles found at Messrs. Stuckey's Bank. These seem to be of rather rude manufacture, and were probably the four tiles at the corners or angles of a floor, the pattern of which was a diaper, consisting of circles and squares, interlaced, and containing a *fleur-de-lis* in the centre. Probably they are of early fifteenth-century workmanship. Their margins prevent the patterns from uniting symmetrically; but perhaps the general effect of the floor was little worse on this account—the colour, and not the pattern, being in such cases the primary source of interest, as in the case of the ordinary Turkey carpet, in which no one looks for a pattern; and while our Axminsters, Wilton, and Kidderminsters, the designs of which have been considered, rather than the harmony of their colours, are so distressing in their obtrusive roses and cornucopias—the incomprehensible and oft-repeated interlaced design of the old Turkey carpet seems never to weary, and the modern designs for tiled floors have very commonly proved failures, and almost in proportion to the symmetry and continuity of their patterns. Still, in the case of the tiles alluded to, the separation should not have been in the form of pattern, which is unmeaning if not continued: the relief should have been sought in colour. The tiles are evidently of rude manufacture. Tiles are now produced by pressure on dry clay, the agent being either steam or hydrostatic power, which is applied until cohesion results. The cuts in the back are to keep the tiles from shrinking, and to hold them fast in the cement.

Mr. Elliot, at the close, said, according to the *Taunton Courier*, it was doubtful, whether any tiles had been discovered in England, that present the features of the Norman style of decoration, the most ancient being apparently of the thirteenth century. Having briefly described the process of manufacture most commonly employed, he observed that it appeared probable that the origin of decorative pavement was to be sought in the mediæval imitations of Roman pavements. In almost every instance where the ornamental tiles had been accidentally discovered, or dug up on the site of a castle or mansion, there had been reason to suppose a consecrated fabric had once existed. Among the earliest specimens of glazed tiles might be mentioned the pavement discovered in the priory church at Castle Acre, Norfolk. They were ornamented with escutcheons of arms: they were coarsely executed: the cavities were left, and not filled in with any clay of different colour. Sets of four, nine, sixteen, or a greater number of tiles, forming a complete design, had been sometimes found; but examples of general arrangement were very rare and imperfect. In the ancient system a large proportion of plain tiles, black, white, or red, were introduced, and served to divide the various portions which composed the general design. In modern imitations, where that division of compartments had been neglected, the effect had been unsatisfactory, having the look of oil-cloth or carpeting. The frequent occurrence of heraldic decoration rendered them valuable as an evidence or illustration of the descent of property, as at Great Malvern, the bearing of the successive lords of the chase and manor were exhibited, and finally the royal arms of England, the lordship having, by marriage, reverted to the crown. At Tawstock, Devon, were the tiles stamped according to the ancient process, with ornaments evidently copied closely from ancient originals, and in high relief—one of them bearing a *fleur-de-lis*, the initials T. W. and date 1708. At St. Decumans, Somerset, there were similar tiles with raised patterns. Evidences tended, in unison with the general character of decoration displayed in the tiles of the fourteenth and fifteenth centuries, to show that they were of English manufacture. In 1833, a furnace of brick was discovered on Priory farm, Great Malvern, constructed for the purpose of baking such tiles, and containing fragments similar to those which exist in the neighbouring churches. A similar furnace was discovered in 1837, in the parish of St. Mary Witton, near Droitwich, formed like that at Malvern. Now, though they had not discovered a furnace at St. James's, they had got as near to it as may be: as the children say in their play, "you burn." They had got the tiles with the glaze running one into the other, with the evidences of cinder upon the surface.

Books Received.

Examples of Building Construction. By HENRY LAXTON. London: 19, Arundel-street, Strand. Volume for 1857.

MR. LAXTON'S work, to which we drew attention on the appearance of the first part, has now attained the form of a volume consisting of eighty plates of large size. It is intended by the author as an *aide-mémoire* for the professional man and the operative, and is, in fact, a series of working drawings to a large scale, exemplifying the arrangement and details adopted,

in carrying out the several branches of trade requisite for public and private edifices." The details are selected from buildings by Messrs. W. Young, J. and J. S. Gwilt, H. Laxton, G. T. Robinson, Scott and Moffatt, G. Morgan, J. T. Knowles, Smith and Thurston, P. W. Wyatt, Sir R. Smirke, J. Shaw, Gandy Deering, Finden and Lewis, Brooks, V. Arnold, J. K. Colling, Ashpitel and Whichcord, G. S. Clarke, Pennethorne, Grissell, J. Billing, Sir C. Barry, J. Thomas, H. R. Abraham, and others. The volume contains doors, windows, shutters, balustrades, cornices, roofs, gates, seats, staircases, coloured brickwork, and many other items, and will be found of the greatest service, both in the architect's office and the builder's workshop.

VARIORUM.

A SET of very useful tables, by Mr. C. M. Willich, actuary, has been published by Messrs. Longman and Co. the purposes of which will sufficiently appear from the title, which is as follows:—"Interest Commutation Tables; for changing at sight any amount of interest at 5 per cent. into the equivalent amount of interest at any other rate, varying from 2½ to 10 per cent. Also, a Commutation Time-Table, for changing the number of days at 5 per cent. into the equivalent number of days corresponding to any other rate, varying from 2½ to 10 per cent."——From the annual report of the directors of the Watt Institution and School of Arts, at Edinburgh, it appears that this school, which is one of the oldest in the country, having been established in 1821, is in a flourishing state. The total number of students attending its classes in mathematics, natural philosophy, French, drawing, modelling, chemistry, &c. in the course of the past year was 543, while the number of tickets sold was 825, a state of matters which the report gives as "highly satisfactory." Except for French (155 tickets), the mathematical classes attracted the greatest amount of attendance (92 students, exclusive of full-course ticket-holders). For drawing, there were 47 special students. At the annual meeting, Professor Pillans gently protested against the examination of candidates for Government appointments on English university routine principles exclusively, as English students had thus an advantage over others which did not necessarily imply superiority on the part of the former, although it promoted their success under examination.——The *Scientific American* is a weekly illustrated paper which ought to be more extensively circulated in this country than it seems as yet to be. We observe in the advertising columns of the number for 28th March last, that a good field is said to be open to builders, painters, oil and paint dealers, cabinetmakers, founders, blacksmiths, and others, at Wininger, in Minnesota, as to which information is offered by Mr. A. W. Macdonald, at the *Scientific American* Office, New York. In the number of the *Scientific American* under notice, there are illustrations of a saw-mill in which the saws are adjusted to the position of the log in course of cutting, instead of the log to the saws. Another shows the construction of a machine for felling trees by hand-power; another, an improved diaphragm pump; and there are other illustrations besides these. A correspondent announces the discovery of a species of caoutchouc in many of the States.

Miscellanea.

WAGES AT THE PORTSMOUTH DOCKYARD.—Sir Francis Baring, M.P. has paid a visit to this port, and received a deputation from the sailmakers and ropemakers belonging to the yard, complaining that they were not paid wages on the same scale as the men of other departments. They felt it as a great grievance, says the *Hampshire Independent*, that while shipwrights were receiving 27s. a week and painters 23s. they only got 21s. Sir Francis thought the best course was to send a petition to the Admiralty. An order has since been received at the dockyard that the ropemakers and sailmakers should receive 4d. per day in addition to their present pay.

PAINT ON PORTLAND STONE. — My method is this:—Get some lumps of well-burnt, fresh chalk, or grey stone lime: break them smaller (about the size of walnuts): dissolve some pearlash in soap lees (or "slutch"), which can be had of soapboilers: boil it, and add it to the lime. Cover it over with an old sack, or the like: keep stirring it up with a stick, and when slaked and mixed, apply it hot to the paint of a good consistence (a brush for this purpose of the finest part of what carpet-brooms are made of), broom hair, or the husks of a large cocoa-nut. As a caution, cover your face with crape, and put on a pair of thick leather gloves. Let the wash remain for a day or two if you can, and then apply the brush used before. If any part still adheres, apply the wash as at first: afterwards, if it requires, wash it off with the clear water of the mixture, or common water.—T. GOODLIFFE.

STAMPED OR INCISED STUCCO.—Mr. B. Ferrey has patented a process by which common rough stucco may be indented with sunk ornamental patterns on the surface as the plastering proceeds, and whilst the materials are sufficiently plastic to admit of the desired impressions or indents being made. We shall take an opportunity to say something more about it.

INDIA-RUBBER PUMP VALVES.—It seems to be a good idea to imitate, by means of an elastic tissue like vulcanised rubber, the action of the valves in that living pumping apparatus, the heart and blood ducts. This has to a considerable extent been effected by an ingenious Frenchman, M. Perreaux, who has patented his invention both in France and England, as well as elsewhere. This valve has two thin straight lips, which gradually thicken and spread out wedge-wise into the form of the stump of a tube, so that when inserted and fixed, lips upwards, in the throat of the pump, the slightest pressure of the water from below opens the lips apart, thus allowing the water to pass, and again closing on the cessation of the upward pressure of water, so as to retain what has passed to the upper side of the valve whatever be the downward pressure, which only closes the lips the more firmly. There is thus, too, a clear throat, as it were, for the water-flow, without anything to retard its passage, or much chance of getting out of order, as the ordinary pump valve is apt to do, even from the least trifle wedging up the hinge of it, so as to prevent its thorough closure. M. Perreaux, it appears, was awarded the silver medal for 1856, at the French Exposition d'Agriculture, for his invention.

THE WORCESTER RAILWAY LITERARY INSTITUTE.—A public dinner to celebrate the establishment of this institution took place last week at Worcester. It originated with Mr. A. C. Sherriff, the general manager of the Oxford, Worcester, and Wolverhampton Company. During Mr. Sherriff's residence at York he had had occasion to note the benefits derived by between 500 and 600 men employed on the North-Eastern line from the establishment of a "Railway Literary Institution." In this school, knowledge on various subjects particularly connected with the railway departments was imparted, at a very small cost, to the men. Mr. Sherriff, on going to Worcester, regretted to find no similar institution existing on the local railway, and suggested to the directors the desirability of such a society being instituted. The directors of the Oxford, Worcester, and Wolverhampton Railway assisted Mr. Sherriff in his purpose, and his efforts have been attended with very answerable results. Although no appeal has yet been made to the public for pecuniary assistance, nearly 60*l.* have been raised, chiefly by the directors and managers of the company; and the dinner referred to, and the establishment of the institute, are the more immediate results.

CHIMNEY CONSTRUCTION AND THE "SWEEP" SYSTEM.—The Midland Association at Derby for the Suppression of the Use of Climbing Boys in Sweeping Chimneys, claim our aid (which we willingly give) in calling public attention to the necessity of architects and others constructing chimneys in such a way that there may no longer be the slightest pretext for employing poor lads to ascend chimneys for cleaning. The mischief of badly-constructed flues is greatly exaggerated by a prejudiced public and by interested sweeps; but the mere calling of attention to the subject may do much to check an increase of the evil, for it is to be feared builders and others, in the provinces at least, think little of suffering humanity, as embodied in the climbing boys of this country. There is a law on the subject (section 6 of 3 & 4 Vict. cap. 85), but this is often evaded, because it is no one's business to look after the builders of new houses, &c. Absurd chimney-pots are often an obstacle, in using the sweeping-machine, tending to perpetuate the use of boys.

THE POPLAR ASSISTANT SURVEYORSHIP.—"A Candidate" complains indignantly, that, in the midst of forty applicants for this situation who filled the room and the passage appropriated to them while awaiting the deliberations of the District Board of Works, who had advertised in our columns for an assistant surveyor, a stripling drove up, with his uncle, an influential member of the board, and was ushered into a special apartment, whence, after a mere show of examination of some few of those applicants who did not go away on seeing how the election was plainly destined to be decided, Mr. Stripling came forth, and was forthwith appointed to the vacant office, as was fully anticipated by all the more experienced and less sanguine of those candidates who had no influential uncles on the board. Our correspondent asks, what was the use of advertising at all in such a case? In our opinion, if the case be fairly stated, it was not only useless, but a cruel mockery, so to excite the hopes and fears of nearly half a hundred, no doubt meritorious, professional men in such a way.

THE LATE JOHN BRITTON AND THE WILTSHIRE ARCHÆOLOGICAL SOCIETY.—The following letter has been addressed by the Hon. Secretaries to each member of the Wiltshire Archæological and Natural History Society:—"Sir,—Some of the members of the Wiltshire Archæological Society are desirous of expressing their respect for the memory of their late Vice-president, and honorary member, John Britton. For this purpose, and at the same time in acknowledgment of his zealous and long-continued labours in illustration of the general antiquities of England, and more particularly of those of the county of Wilts, it has been suggested that some memorial be erected in the church of his native parish, Kington St. Michael, which is now to be restored. Mr. Britton had been for the latter years of his life in receipt of a small annual pension from the crown. With his decease this expired, and his pecuniary circumstances having been found to be limited, it is further proposed that a subscription be raised to purchase an annuity for his widow. These suggestions are respectfully submitted to your approval, and contributions towards both or either of them, to be distinguished as donations to the 'Britton Memorial,' or 'Mrs. Britton's Annuity Fund,' will be thankfully received at the bank of Messrs. Locke and Co. Devizes." We understand that the Marquis of Lansdowne, Mr. S. Estcourt, Mr. Sidney Herbert, and Mr. Poulett Scrope, have each subscribed ten guineas towards the accomplishment of the objects proposed.

PAVING THOROUGHFARES AT BIRMINGHAM.—A plan for paving second-rate thoroughfares in this town has been submitted to the local Public Works Committee. The system, though new to Birmingham, has been for some time past in operation in North Staffordshire and other towns in the midland counties, and it consists in a diagonal arrangement of vitrified bricks, the chief advantages of which are represented to be great durability and solidity, as well as economy of cost compared with that of pebble and Rowley-rag pavements. The expense of the new pavement, including the laying, it is said, would not exceed 1s. 6d. per superficial yard, or one half of the pebble paving.

INSTITUTION OF SCOTTISH ENGINEERS.—A numerously attended meeting of engineers, presided over by Mr. Robson, lately assembled in the Philosophical Society's Hall, Andersonian Institution, Glasgow, to receive and consider the report of a committee appointed relative to the establishment of an Institution of Engineers. A series of rules were discussed and agreed to, and it was decided that the society should be styled the "Institution of Engineers in Scotland." The former committee consisted of Professor Rankine, Messrs. Walter Neilson, James R. Napier, and William Ramsay. The committee was re-appointed, Messrs. Robson, D. More, Alexander, Rowan, Downie, and M'Onie, having been added to it.

ON DISINFECTANTS AT SOCIETY OF ARTS.—On the 22nd April, the paper read at the Society of Arts, Adelphi, was "On Disinfectants," by Dr. R. Angus Smith, of Manchester. The author began by giving some account of the precautions taken in reference to this subject in ancient times. Having expressed it as his opinion that much of the knowledge possessed by the ancients on these subjects has been lost, Dr. Smith proceeded to discuss some of the various changes which take place in bodies, particularly fermentation and putrefaction, and, after touching upon many substances which had been used as disinfectants, he gave the results of some experiments made by Mr. M'Dougal and himself in reference to this subject. They found that of all bases magnesia was the best to use for the disinfection of manures, as the only one which gave an insoluble ammoniacal salt, and preserved the ammonia at the same time, whilst it was an agent also employed regularly by nature in the economy of vegetation;—that of all acids sulphurous acid was the best, and its power was at least equal to chlorine, but it had not the quality which chlorine possesses, of decomposing ammonia; whilst, when it had done its work, it was either converted into a harmless solid, as sulphur, or, by combining with an alkali in the soil, became a sulphite, another agent used by nature. They combined the base and the acid, and found that by this means disinfection was nearly completed by the use of only a small portion of material. They had tried the carbolic acid from coal tar, a homologue of creosote, but had not been able to produce good results by it alone. When the sulphite acted there was still a small remaining smell, which the carbolic acid removed: they, therefore, added to the sulphite about 5 per cent. of carbolic acid, and so produced their disinfecting powder. Dr. Smith then gave some account of the successful use of this powder, particularly in the town of Leek, which had recently been attacked by an epidemic, and when the disinfectant was applied to the principal sewers and cesspools, the disease was found gradually to abate. A discussion ensued, in which Mr. P. H. Holland, Dr. Milroy, Messrs. Dugald Campbell, Robert Rawlinson, and the chairman took part.

ACTION ON AN ACCOUNT FOR BUILDING A CHURCH.—The case of Messrs. Pearson, builders, against the Rev. Wm. Coke, was heard at the last sitting of the Ross County Court. It was brought for settlement of an account for building the new church at Brelstone-green, Marstow. For the plaintiffs, it was alleged that in July, 1854, Messrs. Pearson prepared drawings for the said church, and delivered a tender for the erection of the same. Mr. Nicholson, of Hereford, architect, afterwards prepared a specification, and Messrs. Pearson contracted to do the building for 525*l.* making an allowance of 40*l.* in that amount for old materials, but Mr. Coke pleaded the 40*l.* as a set-off against the amount of the contract. The sum of 519*l.* 10s. 10d. was paid on account of the original estimate, and extra work done. After some evidence and discussion, the judge said it appeared to him that Messrs. Pearson were entitled to 525*l.* *plus* the old materials, and if the matter was misunderstood by Mr. Coke, that was no reason why Messrs. Pearson should suffer. From the terms of the contract, Messrs. Pearson were entitled to a clear 525*l.* in money. Mr. Coke raised an objection, but the judge said he was bound by the mistake of his architect, if it was a mistake. The specifications included the old materials. He had no doubt whatever that Mr. Coke was under the impression that the 40*l.* were to be allowed off the 525*l.* Judgment withheld.

DOVETAILED MASONRY.—Provisional protection has been secured by M. Gustav Julius Günther, for a method of strengthening the construction of masonry by cutting building stones into such shapes as shall cramp together in various ways, so as to imitate a piece of solid rock in mass, even independently of cement or mortar. The principle is not new, and, indeed, M. Günther, to some extent, admits this, but we rather think it has been patented already: at all events, we remember noticing the model of a bridge constructed on a somewhat similar principle, which was exhibited (as a subject of a patent, if we mistake not) at the Great Exhibition of 1851. The same principle, it is obvious, is applicable to brick construction, to which allusion is also made in the prospectus addressed to capitalists by M. Günther, and has been adopted in more than one instance.

SCULPTURED STONE MONUMENTS IN SCOTLAND.—At a recent meeting of the Society of Scottish Antiquaries, held in Edinburgh, a paper containing descriptive notices of the localities of certain sculptured stone monuments in Forfarshire, namely, Benvie and Invergowrie, Mains and Strathmartin, Moniefieth, Cross of Camus and Arbirlot, was read by Mr. A. Jervise.

THE SHEFFIELD CRIMEAN MONUMENT.—The committee have made such progress in this movement, that it has been resolved to advertise for designs for the monument, the cost of which shall not exceed 1,200*l.* It is intended that the designs sent in shall be opened to the inspection of the public, previous to selection.

WORKS AND PUBLIC BUILDINGS.—The Commissioners of Works and Public Buildings expended in the year ended 31st March, 1856, 183,934*l.* for Royal palaces and public buildings; 81,377*l.* for Royal parks and pleasure-gardens; 124,945*l.* for the New Houses of Parliament; 13,158*l.* for the General Repository of Public Records; 5,554*l.* for Holyhead Harbour, &c.; 21,807*l.* for the salaries and expenses of the Office of Works, &c.; 64,962*l.* for the British Museum buildings; 21,407*l.* for Battersea-park; 19,658*l.* for Chelsea-bridge; 22,962*l.* for the Chelsea embankment and public roadway; 5,952*l.* for the Downing-street improvements, new public offices, &c.; 11,000*l.* for Buckingham House, in Pall-mall; 3,726*l.* for Windsor improvements; 200*l.* for the Nelson monument. The total sum expended was 604,707*l.*

A SLIGHT DIFFERENCE.—What can be said to explain the following tenders for the plumber's and painter's work, to be done to twelve houses, Leabridge-road, for Mr. Cluff? Mr. E. Williams, architect.—A. B.

J. Tuncliffe	£655	0	0
C. Grist	456	0	0
Allard	455	0	0
Johnson and Rowland	432	0	0
W. J. Thorpe	399	10	0
H. Howe	397	0	0
J. Gurridge	392	8	0
J. E. Waldon	360	0	0
S. Leonard	350	0	0
R. Wiltshire	347	0	0
R. Dulham	337	0	0
S. Eaton (accepted)	330	0	0
G. Wollaston	320	0	0
C. and W. Brooks	305	8	0
W. Knowles	296	0	0
S. Taylor	283	0	0
Shaw and Wood	251	10	0

MONTROSE WATERWORKS.—These works are nearly in a workable state. The contractors have made good progress with the works at Kinnaber, and the reservoir at Sunnyside. The well at Kinnaber is 22 feet deep and 25 feet in diameter. The buildings for the water-wheel and pumping machinery are finished; the wheel is 12½ feet in breadth, and 16 feet in diameter, working power, 20 horses. The water will be forced in a continuous stream into the reservoir, which latter is being built with stone sides and brick bottom, and will be 12 feet deep, and contain above 30,000 gallons. It is so situated as to enable the water to rise to the highest floor of the most elevated buildings in the town. The pipes to the town, which are laid, are nearly 3 miles, or about 15,000 feet, in length. They are connected with the old pipes and the reservoir at Lochside, which also they can supply.

DUNDEE NEW HARBOUR WORKS.—The contract for these works has been let to Messrs. Carstairs, Mitchell, and Co. of Kirkcaldy, for 36,133*l.* Mr. Ower the harbour engineer's estimate was 39,998*l.* Of seven offers lodged by different contractors, two were above that amount and five below. Three of the tenders were within 500*l.* of each other. The lowest was that accepted. Mr. Carstairs, of Kirkcaldy, was the builder of the railway station and viaduct at Newcastle, and Mr. Mitchell, of Montrose, is also a railway contractor. One of the other six tenders was only a small sum above that accepted. The work estimated for includes the carrying of the main common sewer (which discharges itself into the present tidal harbour) out to the river at the south-east point of the river wall; underfooting the quay walls of the present tidal harbour; the new quay walls; scouring tunnels; masonry of the 60 feet wide new entrance lock; and filling up between the new walls, forming quays, with the earth taken from the new dock. The present east tidal harbour will thus be converted into a wet dock, as authorised by the new Harbour Act, and sanctioned by the Admiralty: the iron gates will be a separate contract. The completion of the north wall of Victoria Dock, with its lock, during the progress of the works now contracted for, would give an immense addition to the dock accommodation of the port. The contractors will commence their operations during the summer.

THE WATER COLOUR SOCIETIES.—Both societies are now open, and the collections are very satisfactory: we are forced, however, to postpone our notice of some of the more important works.

ARCHITECTURAL ASSOCIATION.—The dinner of the members of the Association and their friends will take place on Tuesday evening next, at 7 P.M., at the Albion, Great Russell-street, Covent-garden.

REPORT ON CLOSETS.—The Sunderland Sewerage Committee have reported to their town council, on "Answers from various towns respecting water-closets." The report states in the outset, that the committee had caused extensive inquiries to be made through their surveyor, among the fully drained boroughs and cities of the empire, relative to the influence of such closets; and it is remarked in conclusion, that the information, liberally furnished, "whilst it shows that in a few and exceptional cases the inconveniences connected with water-closets, of which so much has been said, have arisen, conclusively proves that they have been, when arising from the ignorance of those employing them, very temporary, and in many cases, that of Uxbridge for example, so partial as to have hardly existed at all. The only cases in which they have been extensive or permanent, have been those in which the water supply has been inadequate or ill managed."

NORFOLK AND NORWICH ARCHÆOLOGICAL SOCIETY.—The annual meeting of this society was held at the Guildhall, Norwich, on Wednesday in last week, the Rev. J. Bulwer in the chair, when the annual report was read, congratulating the members on the flourishing state of the society. The report was adopted, and other official business transacted. The secretary then read a paper from Dr. Husenbeth respecting mural paintings, especially those discovered in the church at Limpenhoe, Norfolk, in 1852. The chairman was rather surprised at the statement in the paper, that these paintings were done by itinerant decorators. He thought that was scarcely possible, for though the majority of them were rude, many of them were exceedingly well done, and showed high attainments in art. Mr. Fitch said he had received a communication from Mr. D. Gurney and Mr. Pettigrew, stating that the Archæological Association of England would hold a meeting here in August, under the presidency of Lord Albemarle. He (Mr. Fitch) was sure that he expressed the sentiments of the members when he said that they would give the association the same hearty welcome as had been given to the Archæological Institute, when that body visited Norfolk. A vote of thanks to the retiring secretary, Mr. Harrod, was then passed, and the meeting separated.

MONUMENT TO THE LATE MR. ATTWOOD, AT BIRMINGHAM.—It is intended to erect a monument in Birmingham to the late Mr. Attwood (of Currency celebrity, if we mistake not), and a sum of 800*l.* has already been promised to that end. Mr. Hollins, of Birmingham, and Mr. Thomas, of London, were to be invited to furnish designs or models for the monument, to be erected on a site not yet determined upon, the cost not to exceed the sum of 800*l.*

SURVEYOR TO LOCAL BOARD OF HEALTH, MERTHYR-TYDFIL.—Mr. J. W. Harrison has been re-appointed surveyor for the ensuing year, at a salary of from 150*l.* to 175*l.* per annum.

CANADIAN RAILWAYS: STONE AND WOODEN BRIDGES.—Another accident, similar to the one which recently occurred on the Great Western, at the Desjardin's Canal, in Hamilton, though not accompanied by its appalling result, took place lately, at a place over the Muddy Fork, between New Albany and Salem, Indiana. Two passenger-cars were precipitated 15 feet into the water, by which one person was killed and two others were severely injured. The Great Western will be compelled to substitute stone and iron tubular bridges for the present wooden ones, said to be 236 in number. The Burlington suspension-bridge seems to be insecure. The *Hamilton Banner* asks, "Who is responsible for the safety of the suspension-bridges in the Burlington Heights over the Desjardin's Canal? Is it true that it has been condemned as insecure by an engineer?" On the Grand Trunk, the bridges are all of stone and iron girders. The directors have given directions for a thorough and complete inspection of bridges; and Messrs. Shankey, Keeper, and Starke, the company's engineers, are engaged in that duty.

[ADVERTISEMENT.]

TO THE ARCHITECTURAL PROFESSION, BUILDERS, PROPRIETORS OF HOUSE PROPERTY, &c.

GENTLEMEN,—It has come to our knowledge that, in several instances, persons have been deterred from using iron shutters through fear of being subjected to the trouble, annoyance, and expense that have been experienced by those who have been induced to adopt the revolving shutters of other makers, which have in some cases been mistaken for those of our manufacture, and thereby prejudicing our interest. We therefore feel it incumbent on us to state that since our first introduction of Revolving Iron Shutters, in 1836, we have fixed many thousands in all parts of the United Kingdom, and also exported great numbers, without a single failure, whilst, on the other hand, we have been frequently called upon to adjust and put into working order, and in several instances to remove altogether, the revolving shutters of our competitors, both of iron and wood, though but a comparatively very short time in use, and fix our own in their place.

Our shutters are fortunately too well known to require us to publish individual testimonials, but we confidently refer to any of the numerous parties we have ever supplied, amongst which will be found the Royal Exchange, most of the bankers, large establishments, and public buildings in London and provincial towns. As an instance, the eminent firm of Swan and Edgar, in Regent-street and Piccadilly, were the first to adopt them to a large extent; a great number were fixed by us for them *eighteen* years ago, which are now in perfect working order and efficiency, and we continue to guarantee them so at a very trifling annual expense. We also beg distinctly to state that every real improvement in revolving iron shutters has been effected by ourselves, or has become ours by purchase, for the purpose of being incorporated with the practical suggestions of nearly twenty years' most extensive experience, aided by the command of powerful and appropriate machinery. Of this nature is our new Patent Interlocking Curvilinear Shutter, which is suited for all purposes, particularly for mansions and private houses, being lighter, stronger, and cheaper than any other, and is effectually secured from rust by a patented process.

In conclusion, we beg to observe, that availing ourselves of the kind and extensive patronage so long afforded us, we have made such additions and improvements to our extensive works and machinery, as will enable us to reduce our prices in all cases to the level of any other makers', and at the same time maintain the well-known superior character of our works, and to execute all orders with which we may be favoured, with promptitude and despatch.

We are, Gentlemen, your obedient servants,

BUNNETT and Co.

Deptford; Queen-street, City; and Glasgow.

TENDERS

For rebuilding a portion of Newgate Prison ;—

Holland	£15,900	0	0
Cubitt	15,320	0	0
Myers	15,270	0	0
Piper, W.	13,858	0	0
Perry	13,365	0	0
Rider	12,980	0	0
Pritchard	12,831	0	0
Jay	12,653	0	0
Brown and Robinson	12,550	0	0
Piper, T. and Son	11,330	0	0

For rebuilding the tower to Newport Church, Essex. Mr. G. E. Pritchett, architect :—

Bell and Son, Cambridge	£1,990	0	0
Bennett and Son, Whittlesea	1,575	0	0
Brown, Lynn (accepted)	1,560	0	0
Clayton and Co. Cambridge	1,520	0	0

For cleaning, painting, &c. at the Army and Navy Club, Pall-mall. Mr. Parnell, Architect :—

Hackforth	£1,487	0	0
Herman	1,284	0	0
Trollope and Sons	925	0	0

For additions to Beaumont Manor, Herts, for James Fort, esq. Mr. Widdows, architect. The quantities were supplied :—

Heath and Son	£1,230	0	0
Rivett	1,183	0	0
Patman	1,069	0	0
Lewis	979	0	0

For erecting a Branch Bank, in Edgeware-road, for the London and County Banking Company. Mr. Parnell, Architect. Quantities supplied by Mr. M'Culloch :—

	Bath Stone.		Compo.
Holland	£2,949	...	£2,699
G. Smith	2,810	...	2,460
Nash	2,764		
Myers	2,680	...	2,334
Johnson	2,395	...	1,990
Greig	2,287	...	1,832
Trollope and Sons (accepted)	2,159	...	1,859

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AN ARCHITECT and SURVEYOR, established in a midland county town, whose practice is principally in ecclesiastical work, has a VACANCY in his OFFICE for a YOUNG GENTLEMAN who has an aptitude and taste for drawing. A moderate premium will be required.—Letters to be addressed ALPHA, care of Mr. T. Chapman Browne, Bookseller, Bible and Crown, Market-place, Leicester.

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WANTED, an active BUILDER'S SHOP FOREMAN.—Address, with references and full particulars, to B. R. Mr. Paradise, 40, Watling-street, City, E. C.—None need apply unless they have been filling a similar situation, and can have an unquestionable character from their last employers.

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TO CARPENTERS AND BUILDERS.

WANTED, by a Young Man, aged 28, a SITUATION, at low wages. Used either to the bench or jobbing.—Address, JAMES DAVIES, 21, Charlotte-terrace, Copenhagen-street, Islington.

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N.B. Has been accustomed to manage a business.

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FREEHOLD LAND TO BE LET, on Building Lease for ninety-nine years. Money advanced to responsible parties. Freehold Land to be Sold for building purposes in eligible situations. — Apply at the Offices of Messrs. MORGAN and PHIPSON, Architects, 3, Danes-Inn, St. Clement's, Strand.

FREEHOLD GROUND RENT, CITY of LONDON.—The Commissioners of Sewers of the City of London will meet in the Guildhall of the said City on TUESDAY, 9th JUNE, 1857, to receive TENDERS for PURCHASING a FREEHOLD GROUND RENT of 50l. a year for a term of seventy-nine years from 24th JUNE, 1853; and the Reversion of a House, Warehouse, and Premises, situate on the east side of Philpot-lane, in the said City.—Printed particulars and conditions of sale may be obtained on application at the Sewers Office, Guildhall.

JOSEPH DAW, Principal Clerk.

Sewers Office, Guildhall, March 12, 1857.

FREEHOLD GROUND, Tower-street. — The Commissioners of Sewers of the City of London, hereby give Notice that they will meet in the Guildhall of the said City, on TUESDAY, the 26th day of MAY next, to receive PROPOSALS for the PURCHASE of a certain PLOT of FREEHOLD GROUND, situate in Tower-street, near Mark-lane. Further particulars and forms of proposal may be had on application to this Office, where a plan of the ground may also be seen. Persons making proposals for the said land must attend on the above-mentioned day, and the party whose offer is accepted, will be required to pay a deposit of 20 per cent. of the purchase-money, and sign an agreement for payment of the remainder on the completion of the sale.

JOSEPH DAW, Principal Clerk.

Sewers Office, Guildhall, April 28th, 1857.

BUILDING GROUND.—TO BE LET, in that delightful and rapidly improving neighbourhood, Warwick Town, Red-hill, Reigate, and close to the Reigate Junction Station, BUILDING LAND, suitable for six-roomed cottages, for which there is an immense demand. Money advanced if required.—For particulars, inquire of J. PENNEN, 43, Trafalgar-street, Walworth-road, London; or Mr. REES, Estate Agent, Red-hill, Reigate, Surrey.

FREEHOLD LAND FOR SALE, Twickenham, Bromley, and Mitcham.—Five acres at Twickenham, near the new church; two and a half acres at Bromley, with the buildings thereon; two acres at Mitcham, near the church, with five houses and barn thereon, the whole commanding a frontage of 4,000 feet, eligible for building purposes.—For particulars, apply to G. M. 15, Brompton-crescent, Brompton.

FREEHOLD BUILDING LAND. — FOR SALE, Ten Acres, with 4,400 feet of frontage to good roads, close to a station, four miles from the City; price 4,600l. Also, about Twelve Acres, with 2,000 feet of frontage to a good road, by 260 feet deep, near a station eleven miles from London-bridge, price 1,600l.—Apply to Mr. PARSONS, 2, King's Arms-yard, Moorgate-street, E.C.

BUILDING LAND, WANSTEAD-PARK, ESSEX.—TO BE LET on BUILDING LEASES, for long terms, several PLOTS of highly desirable LAND, for villas and other residences, in the above park. The land is situate in the immediate neighbourhood of the Woodford and Loughton Railway. Plans of the property may be seen, and all particulars and information may be obtained on application to Mr. CLIFTON, Architect, &c. No. 5, Gresham House, Broad-street.

TO BE DISPOSED OF, by PRIVATE TREATY, a FREEHOLD MARINE RESIDENCE, in the Isle of Wight. The house is adapted to the requirements of a gentleman's family; the pleasure grounds are beautifully situated on a slope to the sea-shore, with private access to the sands. The property is very eligible for building purposes. Price 2,500l. The owner would have no objection to take well-secured ground-rents in exchange. — Further particulars may be had of Mr. WOODMAN, Architect, Brighton.

MANUFACTURING PREMISES, with good Wharfage, occupying an area of about 2¼ acres, with excellent frontage to the Limehouse Cut, and comprising gatekeeper's lodge, dwelling-house, stabling for nine horses, with lofts; two counting-houses, extensive range of well-built and commodious workshops and warehouses, engine-house, boiler-house, store-rooms, and open and inclosed sheds, TO BE LET (either as one or two occupations) with immediate possession.—For further particulars, apply to Messrs. BEADEL and SONS, 25, Gresham-street, London.

TO BE SOLD for 500l. the LEASE of a SAW MILLS and THREE adjoining HOUSES, with all MACHINERY, namely, 8-horse power boiler and steam-engine, two sawing benches, shafting, riggers, large tank, &c. &c.—Apply to Mr. J. H. ANDREW, Saw Mills, Charles-street, Blackfriars-road.

THREE UNFINISHED HOUSES, containing six rooms each, with walled garden, for 150l. situate 1, 2, and 3, Eagle-street, Forest-gate, Stratford, held direct from the freeholder for ninety-nine years, at 12l. Advances would be made to finish them.—Apply to Mr. SPEARMAN, Land Agent, 45, Bedford row, Bloomsbury, W.C.

EXTENSIVE BUSINESS PREMISES, with Steam Power, TO BE LET, near Gray's-inn-lane.—Messrs. EVERSFIELD and HORNE are instructed TO LET, on Lease, those desirable PREMISES in Portpool-lane, lately occupied by the late building firm of Locke and Nesham, comprising a large open yard nearly 100 feet deep, with timber stages, drying-sheds, and saw-pits, two ranges of carpenters' shops, convenient blacksmith's and plumber's shops, counting-house, and dwelling-house. The low rent of 170l. a year is required, and the fixtures to be taken at a valuation, with the option of taking the steam-engine and machinery attached thereto. — Further particulars may be obtained of Messrs. EVERSFIELD and HORNE, Auctioneers, &c. 40, Parliament-street.

IMPORTANT to BUILDERS and PAINTERS.—Genuine White Lead, 31s. per cwt.; Linseed Oil, 3s. 4d. per gallon; Boiled Oil, 3s. 8d. per gallon; Turpentine, 3s. 4d. per gallon; Fine Pale Oak Varnish, 7s. 6d per gallon. For cash, at EDWARD PRICE'S Oil and Colour Warehouse, 45, Coleshill-street, Pimlico.—Every article for the trade at the lowest price.

SPITALFIELDS LEAD, GLASS, and COLOUR WORKS.—Window-glass of every description, pig, sheet, and pipe lead, solder, tin, shot, plumbers' tools and brass work, closets, pumps, colours, varnishes, oils, turps, red, white lead, &c. supplied, wholesale and retail. LEAD ASHES, OLD and TEA LEAD bought or exchanged in large or small quantities.—A. LEDGER, 36, Great Pearl-street, Spitalfields, N.E. near Eastern Counties Railway Station.

PAINTING-BRUSHES of best quality.—J. B. TYLOR invites the attention of Painters and Builders to his PAINTING-BRUSHES, of every description, which are manufactured on his own premises, of the best Russia bristles. Price list on application.—J. B. TYLOR, Painting Brush Manufacturer, 3, Bury-court, St. Mary-axe, London.

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Diving-dresses of superior make, and improved Vulcanized Rubber Supply-pipes for ditto.

Vulcanized Rubber, in sheets, from three to four feet wide, and of any thickness. Air-beds, Pillows, and Cushions inflating Portable Baths, Invalid Cushions, and Articles of this kind made to any pattern to order.

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DURABILITY of GUTTA PERCHA TUBING.—Many inquiries having been made as to the Durability of Gutta Percha Tubing, the Gutta Percha Company have pleasure in giving publicity to the following letter:—FROM SIR RAYMOND JARVIS, Bart., VENTNOR, ISLE of WIGHT.—Second Testimonial.—"March 10th, 1852.—In reply to your letter, received this morning, respecting the Gutta Percha Tubing for Pump Service, I can state, with much satisfaction, it answers perfectly. Many Builders, and other persons, have lately examined it, and there is not the least apparent difference since the first laying down, now several years, and I am informed that it is to be adopted generally in the houses that are being erected here."

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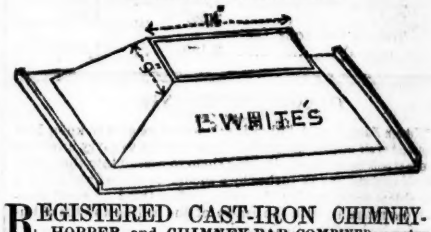

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In price lower, in quality superior, to any in the trade.

Sanitary Tubes of all dimensions, Fire Bricks, Quarries, Tiles, and every article connected with the trade, and made upon the most approved system.

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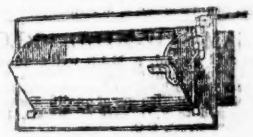
VENTILATION.—PURE AIR.



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These Ventilators are arranged that the requisite quantity of air may be admitted for the due ventilation of an apartment without the slightest draught being felt by the occupants; and as they are placed in the external wall, their action is not impeded when the house is closed for the evening, at which time a constant supply of fresh air is most required.—HAYWARD, BROTHERS, sole Manufacturers, 196, Blackfriars-road, and 117, Union-street, Borough; and of all respectable ironmongers, builders, &c.

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